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DOMESTIC ENGINEERING

Whole No. 612

Chicago and San Francisco, Saturday, September 3, 1904.

Volume XXVIII. No. 10



ST. FRANCIS HOTEL, San Francisco, Cal., warmed by 10,000 square feet of AMERICAN Radiation,—“Perfection” pattern,—installed by Robert Dalziel, Jr., Company, of Oakland, Cal. Bliss & Faville, of San Francisco, Cal., Architects.

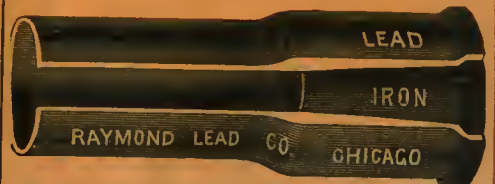
AMERICAN RADIATOR COMPANY

General Offices, 282-284 Michigan Avenue, Chicago.

See Page 33 for addresses of Sales Branches.

GLAUBER

Finest brass goods made



RELIABLE CONNECTIONS made between Lead and Iron Pipe by using the Raymond Ferrule—the only Lead Ferrule on the market which has an extra thickness of lead over the shoulder, giving strength where it is needed and where other lead ferrules are weak.

The Genuine Article Bears Our Label.

RAYMOND LEAD CO.

HOLLAND RADIATORS

**Bremen Eclipse
Reliance Unique**

**DIRECT DIRECT-INDIRECT INDIRECT WINDOW
AND ALL SPECIALS**

WRITE US FOR DESCRIPTIVE MATTER AND PRICES.

HOLLAND RADIATOR COMPANY

**CHICAGO
38 DEARBORN STREET**

**WORKS
BREMEN, INDIANA**

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Denver, Colo., Kellogg-Stokes Stove Co. Indianapolis, Ind., Central Supply Co.
Kansas City, Mo., U. S. Water & Steam Sup. Co. Milwaukee, Wis., The Robert Rom Co.
Cleveland, Ohio, Standard Mfg. Co. St. Louis, Mo., Miller & Brockman

**DIXON'S
PURE
FLAKE
GRAPHITE**

AS A CYLINDER LUBRICANT

Makes cylinders, valves and rods wonderfully smooth and bright. Reduces friction, saving oil and packing. Booklet 138C and sample upon request.

JOSEPH DIXON CRUCIBLE CO.,

JERSEY CITY, N. J.



"Syracuse Standard" Automatic Air Valve

This valve is constructed on both the expansion and float principle. The greatest of care is taken in the manufacture, thereby insuring a perfect working valve. The expansion rod is made of our special composition which is indestructible and very sensitive and quick acting. The construction is such that the float and valve are held in perfect alignment at all times, thereby insuring a valve which is very reliable and perfect in its operation. The design is neat and practical and the best material is used in its construction. All valves are heavily nickel-plated and thoroughly tested before leaving the factory. Send for circular illustrating this valve, as well as the SIPHON AUTOMATIC, WITH and WITHOUT key; also the Automatic AIR LINE Valve.—The cut shown is a sectional view, half size.

STANDARD GAUGE MFG. CO., - SYRACUSE, NEW YORK.

CHICAGO: 58 West Washington Street.

NEW YORK: 141 Broadway.

**REGULATORS
STEAM
WATER**

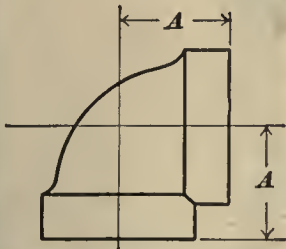
Ross Valve Co.

TROY, N. Y.



CRANE DRAINAGE FITTINGS

FOR THE WROUGHT PIPE SYSTEM OF DRAINAGE



**Malleable Iron
Drainage
Fittings Made to
Order**

WRITE FOR COMPLETE POCKET CATALOGUE

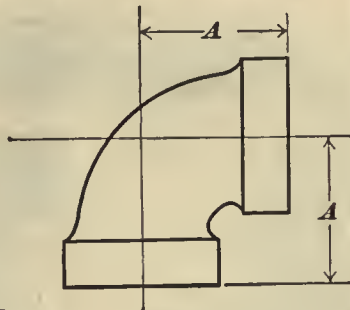
CRANE CO.

CHICAGO

ESTABLISHED 1855

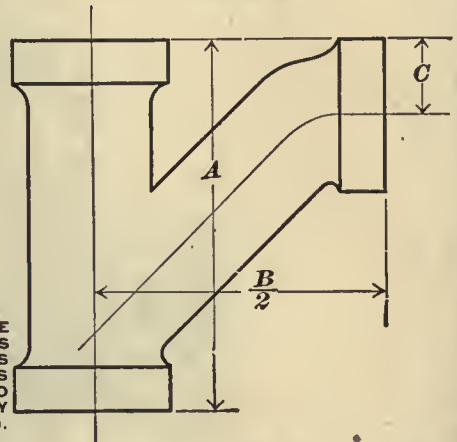
NEW YORK
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BALTIMORE
CINCINNATI
KANSAS CITY
SIOUX CITY
ST. PAUL
DULUTH
OMAHA

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ST. LOUIS
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LOS ANGELES
SAN FRANCISCO
SALT LAKE CITY
WATERTOWN, S. D.
PORTLAND, ORE.



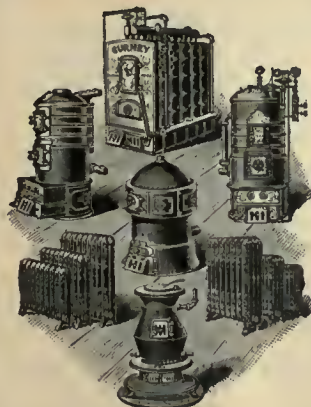
These fittings are made with an inside shoulder. The pipe screws in up to the shoulder, making a perfectly flush joint, thus leaving no pockets for solid matter to lodge in and choke up the pipe.

CAST IRON



GURNEY

HOT WATER HEATERS, STEAM BOILERS, RADIATORS



NO matter which style or size "GURNEY" a customer selects, he is bound to secure the maximum efficiency, greatest durability and largest possible saving in fuel, thus insuring ABSOLUTE SATISFACTION. One of the pleasant features is that these important points are secured at no additional cost over the ordinary kinds of heaters. Write us now about the local agency.

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74 Franklin Street, BOSTON, MASS.

New York Branch, 111 Fifth Avenue, New York City.

Chicago Selling Agents, Davies Warehouse & Supply Co., 20 North Clark Street, Chicago.

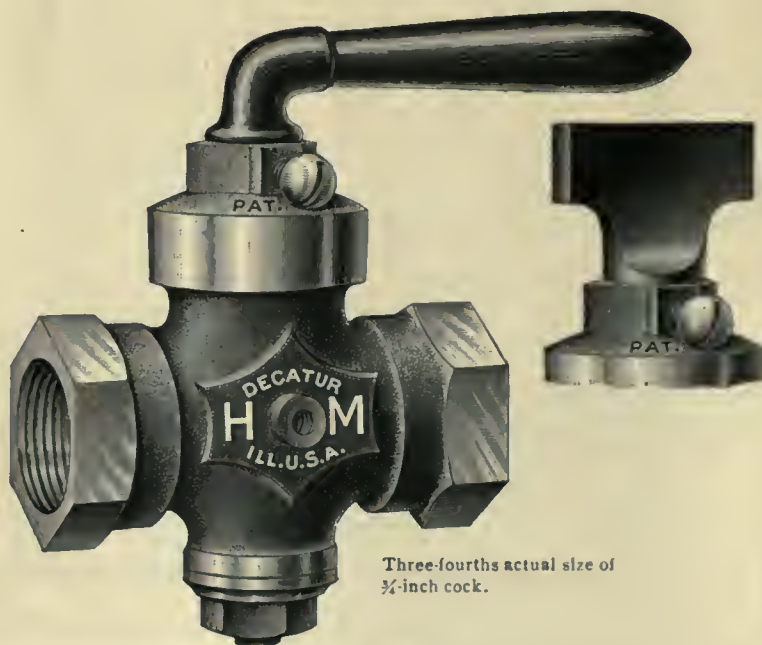
Iowa Selling Agents, The Cedar Rapids Pump Co., Cedar Rapids, Iowa.

E-JEP CO. BOSTON

MENTION DOMESTIC ENGINEERING

MUELLER GROUND KEY WORK

NO. 49 STOP & WASTE COCK



Three-fourths actual size of
¾-inch cock.

C-139

When you install a stop cock your customer has no reason to expect anything but the most satisfactory experience with it.

Mueller Stop Cocks are tested against all flaws that could possibly render their service unsatisfactory. Your customer gets just what he expects you to give him.

Mueller Stop Cocks are made in solid handle, socket head and patent cap patterns, and in all styles of pipe connection. The cock illustrated is the patent cap pattern, iron pipe style.

Each cock is carefully inspected and assembled, is given a 200-pound hydraulic pressure test as near like actual service use as possible, bears the Mueller trade mark and is *unconditionally guaranteed*.

We also make compression work and filler work for plumbers' use. Catalogues upon application.

MUELLER EXHIBIT AT THE FAIR

Mueller exhibit of Water, Gas and Plumbing Goods is located just inside the corner of the Palace of Manufactures nearest the Lindell (or Wabash) entrance to the World's Fair.

Make it your headquarters during the September Convention.

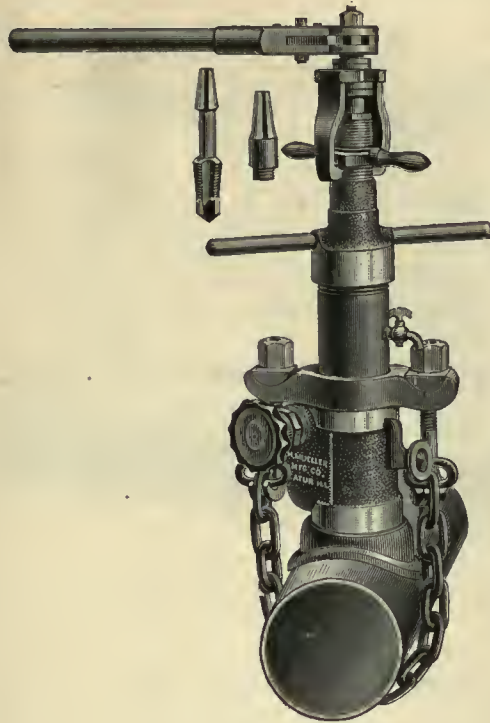
H. MUELLER MFG. CO.,

DECATUR, ILL., U. S. A.

MENTION DOMESTIC ENGINEERING

MUELLER TAPPING MACHINE

MUELLER PATTERN MACHINE



C-001

Each part of a tapping machine may have the weight that indicates strength, yet when the machine is put to use some part will give way because the strength of the material used was not adapted to the work.

Mueller Tapping Machines not only have the weight indicating strength, but the material used in each part is selected for its special fitness to the work. When put to use each part performs its work without danger of giving way.

Mueller Tapping Machines are made in several sizes and styles to do different classes of work. The machine illustrated makes taps from $\frac{3}{8}$ to 3 inch and inserts corporation cocks from $\frac{3}{8}$ to 2 inch.

Each machine is carefully inspected and assembled, is given a working test as near like actual service use as possible, bears the Mueller trade mark and is *unconditionally guaranteed*.

We also make ground key, compression and fuller work for plumbers' use. Catalogues upon application.

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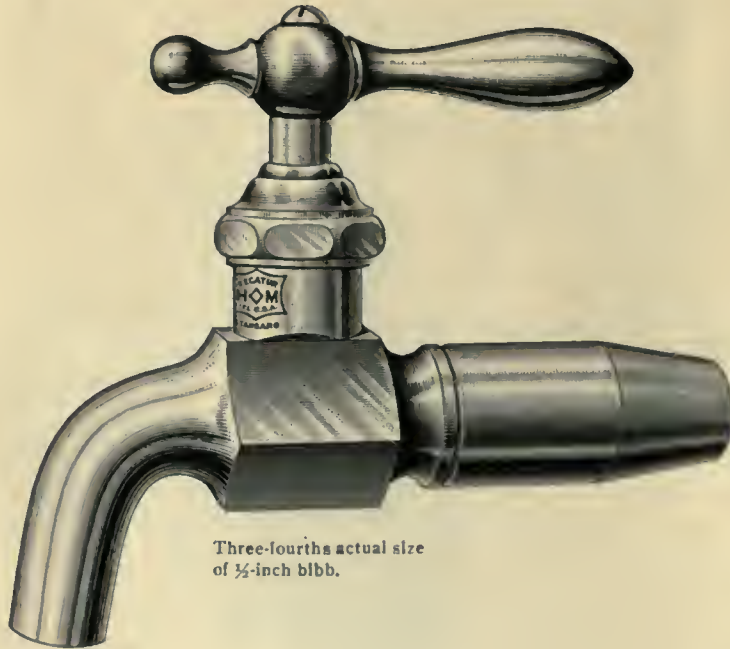
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DECATUR, ILL., U. S. A.

READ THE ADVERTISEMENTS

MUELLER FULLER WORK

STANDARD GRADE BIBB



Three-fourths actual size
of $\frac{1}{2}$ -inch bibb.

In selecting plumbing fixtures the customer is influenced most by their appearance, and the sale of an otherwise good bibb is often lost on account of a poor design or finish.

Mueller Fuller Bibbs have a design that is neat and trim and the metal is the kind that takes a high and permanent polish. There is never any danger of losing a contract on account of their appearance.

Mueller Fuller Bibbs are made in plain and hose patterns and with tall pieces for all styles of pipe connection. Iron pipe tall pieces have the hexagon on either end desired. The bibb illustrated is the plain pattern with lead pipe tall piece.

Each bibb is carefully inspected and assembled, is given a 200-pound hydraulic pressure test as near like actual service use as possible, bears the Mueller trade mark and is *unconditionally guaranteed*.

We also make ground key work and compression work for plumbers' use. Catalogues upon application.

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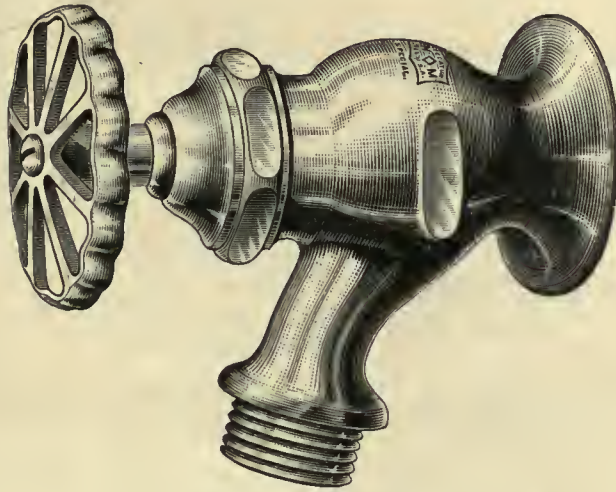
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MUELLER COMPRESSION WORK

SPECIAL GRADE SILL COCK



Three fourths actual size of $\frac{1}{2}$ -inch cock.

In making sill cocks some manufacturers use one size of body for different sizes of openings without regard for the extra strength required for the larger waterways.

In Mueller Sill Cocks the size of the body varies according to the size of the opening, the design being such that the larger waterways have the extra strength required.

Mueller Sill Cocks are made with bent or straight nose, with tee or wheel handle or loose key, and rough finish or nickel plated. The cock illustrated is the bent nose wheel handle pattern.

Each cock is carefully inspected and assembled, is given a 200-pound hydraulic pressure test as near like actual service use as possible, bears the Mueller trade mark and is *unconditionally guaranteed*.

We also make ground key and fuller work for plumbers' use. Catalogues upon application.

MUELLER EXHIBIT AT THE FAIR

Mueller exhibit of Water, Gas and Plumbing Goods is located just inside the corner of the Palace of Manufactures nearest the Lindell (or Wabash) entrance to the World's Fair.

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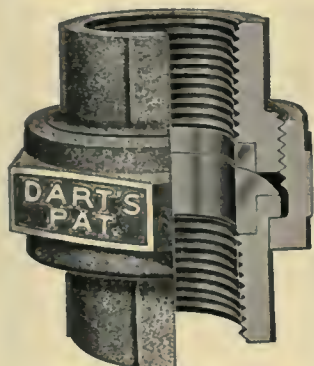
H. MUELLER MFG. CO.,

DECATUR, ILL., U. S. A.

MENTION DOMESTIC ENGINEERING

DART PATENT UNION

Strongest and Most Durable Union Made



It has a bronze ball-ground joint and male ends and nuts.

Adapted for all uses

The most desirable form of connecting together pipe ends.

Manufactured by

E. M. DART COMPANY

Providence, R. I.

Send for Circular

Western Valve Co., Chicago.

Robinson & Carey Co., St. Paul, Minn.

The Fairbanks Company,

Sole Canadian Agents.

MONTREAL, TORONTO, VANCOUVER AND WINNIPEG.
NEW YORK and other branches in the U. S.

Save Your Customer

AT LEAST 50 PER CENT IN FUEL BY INSTALLING OUR

"Invincible"

OR

"Eclipse"

Steel Heating Boilers



Construction of best flange steel. Internally fired. Easily accessible. No brick work to absorb heat units. No cast iron sections to crack. No joints to be repacked. Complete and ready to set up on leaving our works. Any kind or grade of fuel can be successfully used. No boilers on the market so easily and readily cleaned. For catalog, prices, discounts and testimonials, address

BURNS BOILER & MFG. CO.

ESTABLISHED 1863.

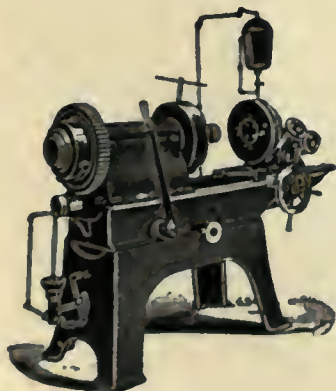
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308 Union Trust Bldg., Detroit, Mich.

321 N. Y. Life Bldg., Minneapolis, Minn.

Write for our prices on Standard Fire Box and Tubular Boilers

Williams No. 3 Pipe Machine



Is a strong substantial tool that will cut and thread pipe from 1 1/2 inches to 6 inches. It is a rapid worker, is equipped with Quick Opening Adjustable Dies and has six changes of speed without removing or replacing gear. Send for Circulars and Prices. We build Pipe Machines cutting from 1/4 to 12 inches.

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Regular A. J. Beaton Plates and other varieties. All copper plated before being nickel plated. Seven different patterns of set screw and spring plates from 3/8 inch size to 8 inches.

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The Beaton & Corbin Mfg. Co.

Southington, Conn. U.S.A.

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Don't Forget When Placing Orders

THAT



Eclipse Boiler for Steam.

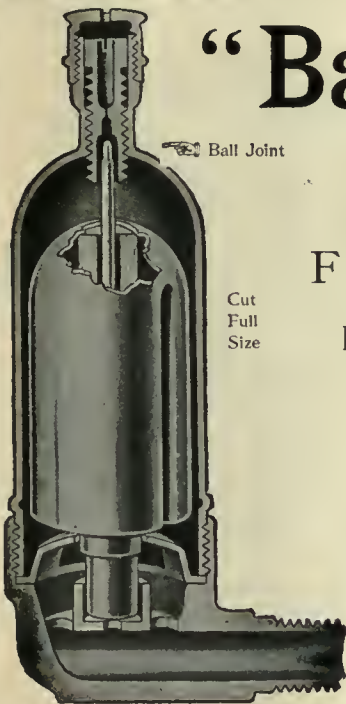
We can furnish the Boiler, Radiators, Steam Goods and Plumbing Material for complete jobs.

Make shipment all in one lot and save Freight.

Our Eclipse Boiler has proven a WINNER. Those who have used them before are placing contracts for this season's requirements.

LET US QUOTE YOU.

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"Ball Joint" Royal

FLOAT AIR VALVE

Distinctive features found in no other valve made.

BALL JOINT

Absolutely preventing leakage.

DEFLECTOR

Prevents a sudden rush of air or steam prematurely closing valve.

"UNCONDITIONALLY GUARANTEED"

Manufactured only by



The Penn Engineering Co., Philadelphia

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If you wish the best known
Hot Air Furnaces, Steam
and Hot Water Heaters, and
the largest stock and varie-
ties to select from, send for

The Boynton Furnace Co.'s

Catalogue, which is complete.



Steam Heater.



Coal Furnace.

There may be others, but the genuine
Boynton Heaters are sure to be right.

The **Boynton Furnace
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WE think the money, experience and energy we have put into the heating question ought to be worth something to you; this is proven to us by the continued endorsement—and trade—of the critical Steam and Hot Water fitters of this country. The men who investigate, who think for themselves, have doubled the sale of "CANTON" Boilers and "SENECA" Radiators during the past year—and *this* means something. It means that the numerous advantages of construction and principle embodied in our boilers and radiators are apparent and convincing to both the Fitter and his Customer. Your own Interests demand your careful consideration of our line.

Hot Water and Steam Boilers
in a variety of styles and
capacities

THE J. H. McLAIN CO.

WORKS AND GENERAL OFFICE, CANTON, O.

BRANCHES:—Cleveland Indianapolis

CRANE CO., Western Selling Agents. JOHN SIMMONS
CO., New York Selling Agents.



FOUR COLUMN SENECA.

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MANUFACTURERS
OF

Fittings, Valves, Cocks, etc.

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ADDRESS ALL COMMUNICATIONS TO THE
GENERAL OFFICE.

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The
Latest
and
Most
Improved
Construction

Artistic
Design

Full Efficient
Service

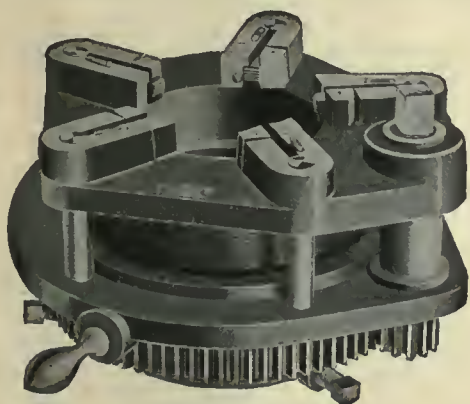
All Heights

New York Radiator Co.
UTICA, N. Y.

79 Lake St., Chicago.

235 Water St., New York.

"Toledo" Pipe Threader



No. 3, List \$300. Threads Pipe from 4½ inch to 8 inch inclusive.

ONE MAN CAN EASILY THREAD
ANY SIZE THE TOOL WILL CUT.
LIBERAL DISCOUNTS GIVEN
SEND FOR DESCRIPTIVE CATALOGUE

The Toledo
Pipe Threading Machine Co.
Toledo, Ohio, U. S. A.

GET IN LINE

and use the

POWERS REGULATORS

Fuel
Savers



Profit
Makers

For all kinds of house heating boilers and furnaces;
For hot water tanks, also

THE POWERS SYSTEMS
OF HEAT REGULATION

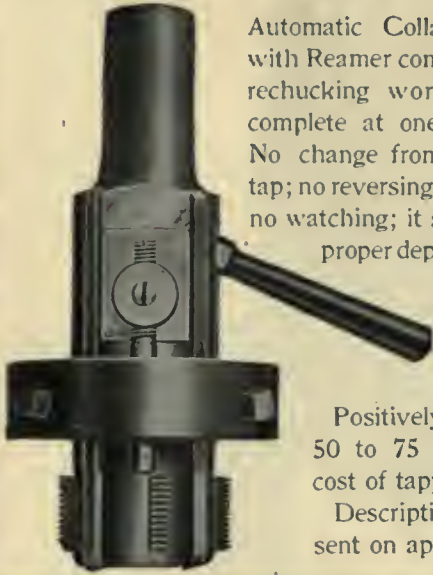
For School Houses and other Public Buildings.

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THE POWERS REGULATOR CO.
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MENTION DOMESTIC ENGINEERING

This is the Only



Automatic Collapsing Tap with Reamer combined. No rechucking work; finished complete at one operation. No change from reamer to tap; no reversing of machine; no watching; it stops at the proper depth and automatically collapses.

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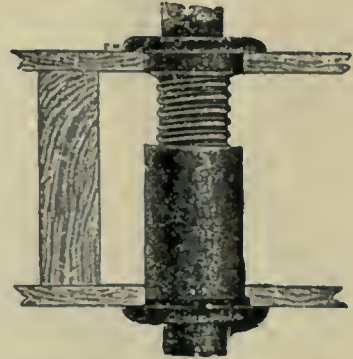
Positively saves from 50 to 75 per cent in cost of tapping.

Descriptive circulars sent on application.

KENNETH ANDERSON MFG. CO.

33-35-37 Atwater Street, Detroit, Mich.

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VOSBURGH

Patent Adjustable Floor Thimble and Ceiling Plate.

N. O. NELSON MFG. CO.

Sole Manufacturers, - St. Louis, Mo.

No floor and ceiling plates can take the place of

===== Snyder's Ball Bearing Plates =====

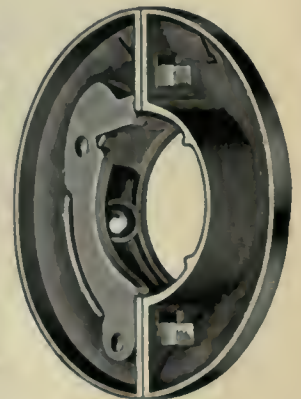
As they are absolutely the best in the world

We are also Manufacturers of

Snyder's Model Floor and Ceiling Plates



Better plates than these two kinds are not made and lower prices cannot be quoted for such standard articles. We are exclusive makers of ball bearing plates. Why buy substitutes when the genuine article can be obtained easily and is the cheapest in the long run. Send for discounts.



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Clevauc Reducing Valves are acknowledged to be the standard. Will reduce from boiler pressure down to any degree desired and maintain same regardless of variation of initial pressure. Every valve warranted. Ten years of continual service demonstrates their superior quality, and prices are right.

Van Auken-Clevauc Co.
ONKERS, ON HUDSON, N. Y.

Rapid

HEATERS

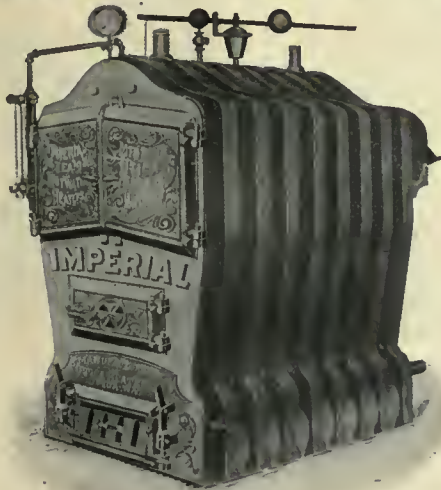
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Are honestly rated,
Are honestly made, and
honestly, Mr. Dealer, they give
more satisfaction and cost no
more than the other kind.

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know all about them. Our
catalog tells you; it's free for
the asking. Write for it and
get posted on how the
"Rapid" is made. You will
like the looks of it and the
way it works when set up.

Rapid Heater Co., Limited
GRAND RAPIDS, MICH.

Yesterday Today Tomorrow Forever



Imperial Sectional Boiler.

SUPERIOR FURNACES, IMPERIAL BOILERS
STAND THE TEST OF TIME

Utica Heater Co., Utica, N. Y.

MANUFACTURERS OF
IMPERIAL BOILERS SUPERIOR FURNACES

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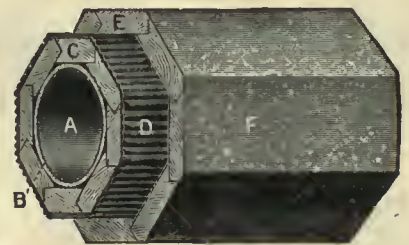
56-58 DEARBORN STREET

WYCKOFF'S

Patent

STEAM PIPE COVERING

For
Insulating
Under-
ground
and
Exposed
Pipes.
Very
Durable.
Eliminates
Ground
Radiation.



A—Tin Lining. B—Asbestos. C—Wood.
D—Corrugated Paper. E—Wood. F—As-
phaltum Coating.

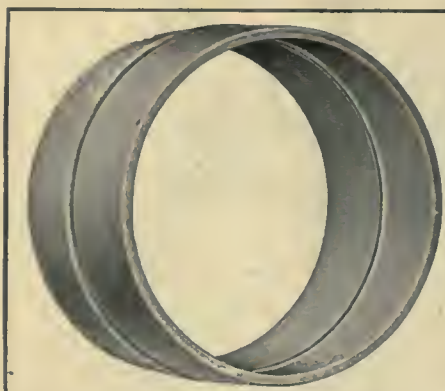
Good results are assured in Central
Steam and Hot Water Heating Plants by
the use of Wyckoff's Covering for protect-
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Send for Catalogue and Price Lists.

A. WYCKOFF & SON CO.

111 E. Chemung Place, Elmira, N. Y.

MENTION DOMESTIC ENGINEERING



Zinc-Coated Steel Slip Nipples

For Steam and Hot Water Radiators and House Heating Boilers

These Nipples are Rust-proof; Impervious to the Action of Distilled Water; not affected by Electrolytic Action; are Absolutely True to Size; are Elastic and Adapt Themselves to any Inaccuracies in Boring of Castings.

FREE SAMPLES FURNISHED TO INTERESTED PARTIES

Made in All Required Sizes. Correspondence Solicited.

THE PRATT CHUCK CO., FRANKFORT, N.Y.



No Union and Flange can be Compared with

The Jefferson Union and Flange

because they are absolutely the best for high or low pressure. Why buy substitutes when the best are as cheap as imitations or inferior makes in the long run. Ask your jobber for the Jefferson.

JEFFERSON MANUFACTURING CO.
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700 Dealers are to-day selling KELSEY Warm Air Generators

Nearly 100 new dealers have taken the agency this year. The satisfactory results from the 25,000 sold, and the recommendation of the users means constantly increasing demands and sales. Some dealer in your town will get the agency if not controlled now, and it will be a profitable one.

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WATER STEAM

SHIRLEY RADIATOR & FOUNDRY, CO.
INDIANAPOLIS, IND.

City Delivery & Shipping Dept.
Telephone 2302 Main

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Thomas G. Knight Co.

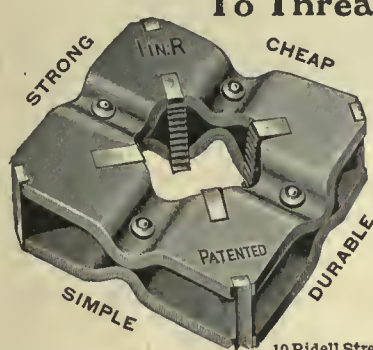
Plumbers' Steam &
Gas Fitters' Supplies

WAREHOUSES:

364 Jay Street
50 & 52 Myrtle Avenue
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Office:

359 Pearl Street,
BROOKLYN, N. Y.



To Thread Steel Pipe

Requires a better die. It must be made of Better Steel, cheap steel soon becomes dull and tears the threads. In "Economy" Dies less steel is used or wasted, so we can afford to use the Best. Also there is more Clearance for chips than is possible in any other form of die. Every Die Guaranteed. Send for catalogue of "Economy" Stocks and Dies for steel or iron pipe.

Manufactured by
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10 Ridell Street, Greenfield, Mass. U.S.A.

STRONG
CHEAP
PATENTED
DURABLE
SIMPLE



"B & A" Elbow Valve

THE BEST VALVE
AT ANY PRICE
IN ANY MARKET

Strong, Simple, Positive

WRITE YOUR JOBBER
FOR PRICES

Blake & Andros
28 Portland St.
BOSTON - MASS.

THE WATERBURY ELECTRIC HEAT REGULATOR

can be used with

STEAM, HOT AIR OR HOT
WATER FURNACES

Send for
catalogue and prices.

Regulates the Fire
Automatically.

Manufactured by
WATERBURY ELECTRIC CO.
48 Jefferson Street,
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"National Lock-Shield Automatic Air Valve"



This valve is made identically the same as our well known "NATIONAL" No. 1 which is giving general satisfaction throughout the country, with the additional feature of having lock and shield, which prevents unauthorized persons from tampering with the adjustment.

They are used largely in all classes of public buildings, apartments, etc., and are highly appreciated by owners who have persons in charge of their heating system.

Fully Guaranteed

National Steam Specialty Co.

230-232 Washington Street, Chicago.

MALLEABLE AND WROUGHT PIPE HOOKS AND STRAPS

Complete stock of every size and kind. Quality the best that can be made. B. B. Ornamental Pipe Straps, all even, clean cut, brightly tinned.

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MENTION DOMESTIC ENGINEERING

MAHONY BOILERS

EMBODY

All the Best Features IN BOILER CONSTRUCTION

They are the intelligent outgrowth of many years of practical experience.

The Mahony Vertical Section Boilers

are dependable. Large effective heating surface, in direct contact, and straight waterways, vertical throughout, make it easy for a Mahony Sectional to deliver

**Hot Water or Steam
up to the Full Rating**



Our Catalogue tells all about them briefly and entertainingly.
IT'S YOURS FOR THE ASKING.

Mahony Mfg. Co., Manufacturers, Troy, N. Y.

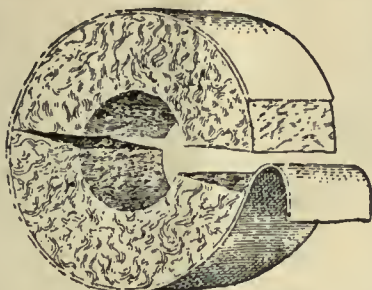
If You Need a Vise for Severe Service



try a Reed Vise. It's guaranteed for just such service and will stand it. If it doesn't, send it back. The jaws—the vital spot in a Pipe Vise—are milled from solid tool steel bars and hardened in oil to give toughness. Our catalogue shows this Vise and other Vises and Tools. Write for it. Catalogue "D".

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OUR DIAMOND N

It Will Pay You to Send us Your Next Order
We Carry a Full Stock of

Asbestos Magnesia Covering

Low Pressure Felt Covering

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Asbestos Blocks

Air Cell Blocks

Asbestos Cement

Magnesia Cement

Asbestos Papers

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You will notice the construction of the Bard Union and Flange is such as to make a positive joint, upon which the unequal expansion and contraction of the brass and iron has no effect, and when made up must remain tight.

The collar on the brass washer holds it in place, but is not fitted permanently; being removable, can be replaced by a new washer at any time.

THE THREAD PROTECTOR at the pipe-end of this Union, keeps the thread from being turned over or jammed, assuring a clean thread, and prevents spreading in screwing on in the pipe. The above features of superior merit combined with the best workmanship should commend the BARD UNION to the trade. Ask your jobber or write for circular and prices.

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OUR Specialties

Cast Iron Elbows, Reducing Elbows, 45° Elbows, Tees, Reducing Tees, Crosses, Reducing Crosses, Return Bends, Wide Pattern Return Bends, Y Bends, Reducing Couplings, Caps and Locknuts. If you want a GOOD Cast Iron Fitting, get one with a "K" on it.

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Works equally well on Natural or Artificial Gas. Increases your light 25 per cent, and uses less gas. Can be used as a by-pass by adjusting small screw on side. Made to fit any style of burner.

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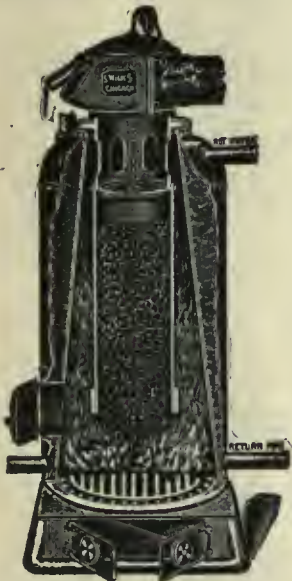
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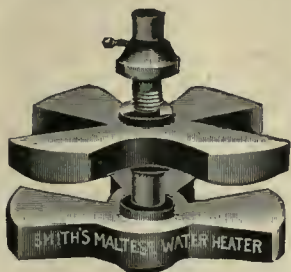
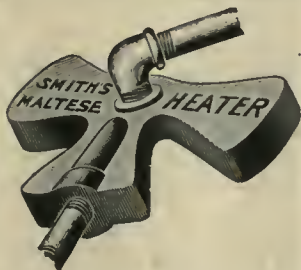
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WATER HEATERS

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**The Parker Combination
PIPE VISE...**

Especially adapted to Plumbers and Steam Fitters use. Made in Six different sizes and every Vise all right. Ask for the "Parker" and you get a good tool. Sold by jobbers.

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Chas. Parker Co
Factories:
MERIDEN, CONN.
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The telescope adjustment will make it fit any floor or partition from 12 to 24 in. thick.

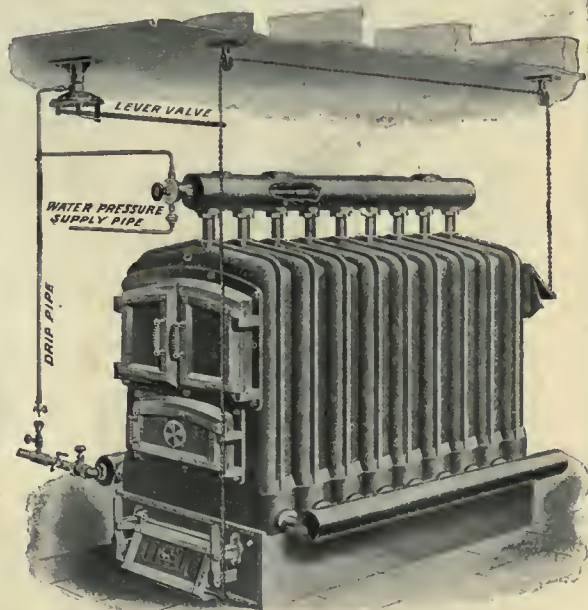
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MENTION DOMESTIC ENGINEERING



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KEWANEE UNIONS ARE AIR TESTED



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Inspection by eye will not do; testing by steam is not enough; the Air Test alone is conclusive. Every Kewanee Union is subjected to Extreme Air Pressure at the works, and if not perfect in every respect, thrown into the scrap heap. There are no seconds.

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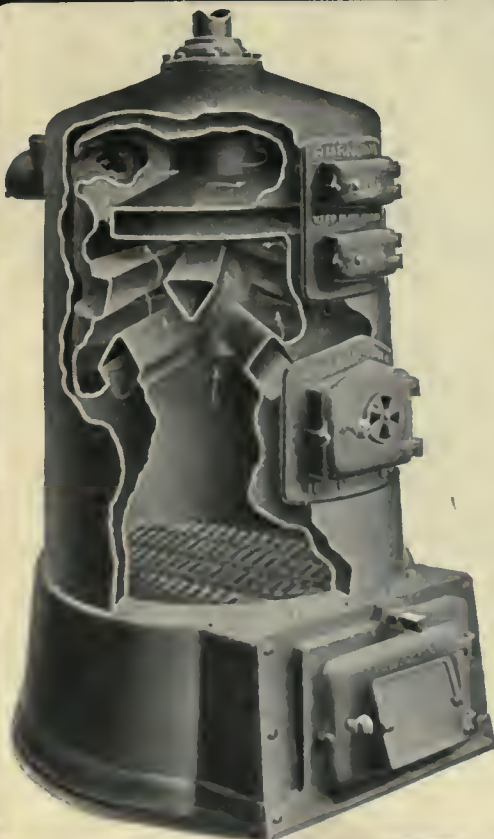
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Your Customers Will Be Pleased
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WRITE TO-DAY TO OUR NEW YORK OFFICE
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9,000 ft. Steam
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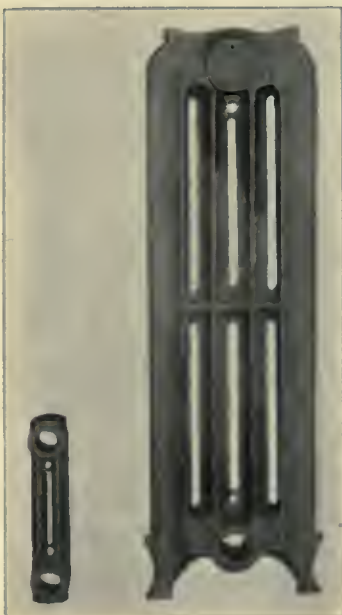
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This cut shows a single section of our Triton Wall Radiator, and our Triton Four Column. The one contains just one (1) square foot of heating surface (Who makes as small?), and the other 9¼ square feet (Who makes a larger one?), and we make EVERYTHING between these two, so you see 'tis possible to use Triton Radiators from cellar to garret.

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SATURDAY, SEPTEMBER 3, 1904.

Whole No. 612. Vol. XXVIII. No. 10.

The How and The Why of Plumbing.—II.

A series of papers designed to show the beginner both the correct method of installing and the purpose of every pipe, fixture and fitting used in household plumbing.

In a former paper we have defined the terms which enter commonly into any discussion of the science of plumbing, such as evaporation, siphonage, vacuum, back-air pressure, etc., so that it will not be necessary to preface every mention of these terms with an explanation of their meaning. The action of these natural forces will become more clear to the reader as we proceed with the study of the science as a whole.

In the accompanying illustration, which is Plate 1 of Starbuck's charts, a common and proper method of installing a kitchen sink is shown. The most conspicuous feature of this outfit is the round lead trap commonly called a "drum." This style of trap is more commonly used in the eastern than in the western cities, where the "S" or "P" trap seems to be more popular for kitchen fixtures as well as for lavatories.

The strong point of the drum trap is the volume of water which it contains, giving it, when kept clean, a stronger seal against the passage of sewer air. The large surface which the interior of the trap presents to the water is also a factor, since sufficient water adheres to the sides of the trap during the discharge of the fixture to insure the sealing of the inlet pipe when this water drips back to the bottom of the trap.

On the other hand, this same surface offers a most serious objection when the trap is not cleaned at proper intervals, since the greasy waste water thrown into the sink is chilled on striking the cooler water held in the trap and deposits on the sides of the trap. In time this grease and the coffee grounds and other sediment which it gathers will fill the entire trap with the exception of a small bore or channel kept open by the force of the discharging water. This obstruction of the trap cuts down very materially the volume of water contained in it, thereby lessening its chance of maintaining a seal.

Moreover the presence of decomposing matter within the trap causes foul odors which readily find their way into the room. The trap is easy to clean by unscrewing the trap screw which forms the cover, and with careful and frequent attention at the hands of the housewife is perhaps as satisfactory a trap as could be used.

In buildings where the sink receives an unusual amount of greasy water, as in the case of boarding houses, restaurants and hotels, a water-jacketed grease trap should be used to intercept the grease on its way to the sewer. This form of trap will be illustrated and described in a subsequent article.

Chicago plumbing practice provides that all waste fixtures shall be run to a catch basin in the yard, and the common "S" trap is therefore used on kitchen as well as lavatory fixtures, the catch basin serving as a grease

interceptor to prevent the choking of the sewerage system by an undue accumulation of grease on its sides.

With a view to reducing the amount of fouling surface the trap is sometimes elevated from the floor on a bracket shelf or pedestal. This is a good practice and should be more commonly observed. The Chicago plumbing ordinance requires that traps shall be placed as near the fixture as possible and in no case shall a trap be placed more than two feet from the fixture which it serves. The reason for this becomes apparent when it is remembered that the inside bore of a two-foot length of 1½-inch waste pipe contains close to a square foot of fouling surface—enough to create a very foul odor when it is covered with rancid grease and other decomposing matter.

It will be noticed that the fixture is set close to the vertical waste and vent lines, thus making possible a very short horizontal run of lead pipe. The location of fixtures should always be so planned that the necessity for horizontal runs will be reduced to the minimum. A long horizontal run of either waste or vent pipe is sure to give trouble eventually, since the movement of water or air through them is more or less sluggish. In vertical pipes, on the other hand, the weight of the water insures a quick passage with the smallest possible amount of friction, the water falling with a momentum sufficient to scour the walls of the pipe of any matter which may have lodged on them.

In the case of the waste pipe a distinct pitch from the horizontal is noticeable. This pitch should be made as great as it conveniently can to insure the greatest scouring effect from the waste water. In a flat horizontal waste matter will gradually accumulate until the bore of the pipe is entirely choked.

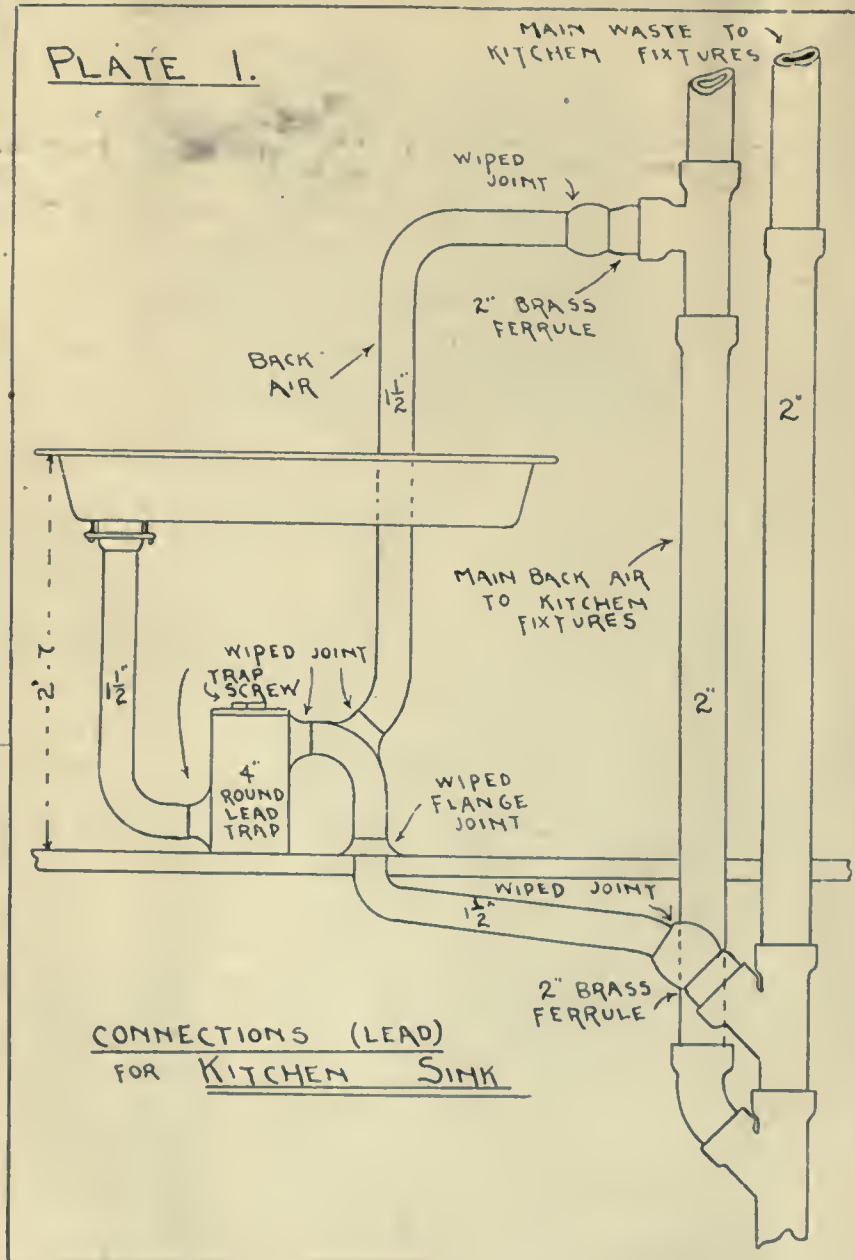
A similar pitch might be and often is given to the vent pipe in place of the 90-degree bend and horizontal. This should always be done where it is necessary to locate a fixture at a considerable distance from the vertical pipes or where several fixtures are vented into a common connection to the vertical.

The connection of lead waste and vent pipes to the vertical cast iron stacks is by means of 2-inch brass wiping ferrules, which are caulked into a T-branch of the vertical vent stack with oakum and molten lead. (The method of making and purpose of caulked and wiped joints will be fully explained in a subsequent article, as will also the proper method of running cast or wrought iron soil, waste and vent-pipes.)

The point of connection is purposely located above the level of the fixture in order that in case the waste pipe becomes stopped, waste water shall not back up through the vent pipe and find a means of escape through the vent system. As water will not by its own momentum rise

above its own level the sink will fill and overflow without raising the level of the water backing up into the vent pipe to the height of the connection to the main vent line, provided this be placed above the level of the sink.

For the convenience of those who may wish to make an estimate of the cost of setting such a fixture we append an itemized statement of the material used. The prices are left blank for obvious reasons:



Proper method of setting kitchen sink.

A common construction is to use galvanized wrought iron for the back air pipe, only a short piece of lead pipe being used to wipe a joint at the point where the back air pipe is taken off from the crown of trap outlet pipe. This short length is connected to the galvanized pipe by means of a joint wiped onto a brass soldering nipple. If galvanized pipe is used it is connected into the cast iron vent pipe by a reinforced tapped tee.

Bill of Materials.

1 Kitchen sink with supports.....	
1 Drum trap, complete.....	
2 2-inch brass ferrules.....	
— Pounds wiping solder.....	
Labor	
(Soil and waste pipes figured separately.)	

(To Be Continued.)

How Steel-Clad Tubs are Made.

It is a far cry from the leisurely methods of the old-time plumber to the modern methods of manufacture, and perhaps in nothing pertaining to the craft is this difference better illustrated than in present-day methods of making the steel-clad tub, which is the lineal descendant of the tin or lead-lined tub of former days, though wonderfully improved in the process of its development.

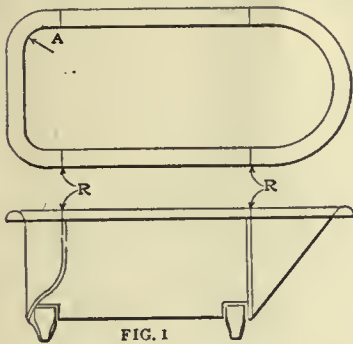


FIG. 1

Then the making of a tub was a matter of skill on the part of the artisan, and of much measuring and fitting, which consumed hours where the latter-day methods require only minutes. In fact the cost of the machinery for making tubs is so great that a plant must needs be able to turn out a very large number of tubs daily in order to pay interest on the investment and sustain the cost of maintenance.

The methods here described have recently been perfected by the Toledo Machine and Tool Company, of Toledo, Ohio, and provide for the making and assembling by machinery of all parts of a perfect tub, the equipment consisting of shears, presses and dies of special design for each particular purpose.

The entire tub, as shown in Figure 1, is made up of only three pieces, the rim being made integral with the body and end pieces. This involves a very clever manipulation of the sheet metal, especially in turning the end pieces.

Something of the difficulty of this operation will be seen by referring to Figure 2, which shows the rear end of the tub in section. The width of the rim is $2\frac{1}{2}$ inches, and its depth at C about 1 inch. The difference between the radius of the inner circle and of the outer circle at the corners is about 3 inches, the periphery of D and E differing 5 inches, from which it will be seen that it requires skillful handling to prevent either the splitting of the outer edge or the buckling of the inner.

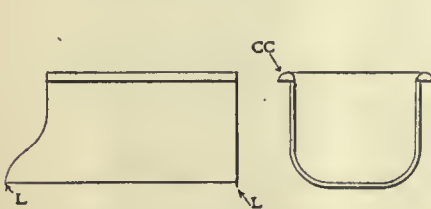


FIG. 4

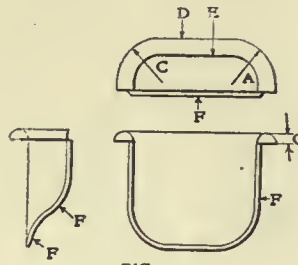


FIG. 2

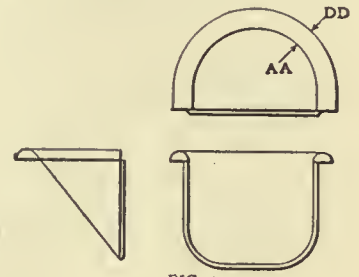


FIG. 3

the operation of curling or forming the top edge is done. A second set of dies flattens or forms the rim at right angles and a third operation curls over the outer edge and finishes the shaping. The first operation was by far the most difficult. No blank holders or pressure rings were used in forming the edge, the operation showing how surprisingly the metal can be made to fold or flow if the dies are correctly adapted to the work. Additional dies next prepare the edges F for seaming, one operation bend-

ing the edge at a right angle all around and a second operation throwing it over about 45 degrees more, when it is ready for seaming to the body of the tub.

The front end piece of the tub is shown in Figure 3

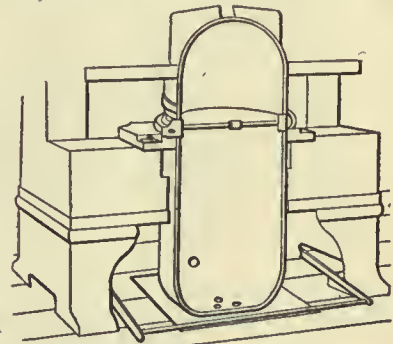


FIG. 7. ASSEMBLING THE TUB.

and the operations upon it are so similar to those above enumerated that it is not necessary to particularize.

The body, Figure 4, having been cut to proper shape, has its top edges shaped in two strokes of the press and with but one set of dies; this being accomplished by a special gage or locating device operated by a hand lever.

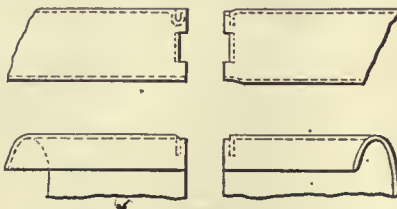


FIG. 5

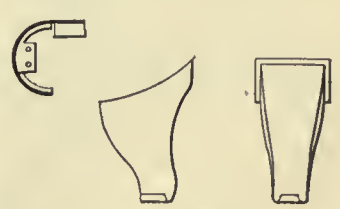


FIG. 6

The process by which this is accomplished is described as follows in an esteemed contemporary, the American Machinist:

The blank is first cut to shape with ordinary cutting dies and in the second operation it is formed to the proper radius at AA in ordinary sheet-metal forming rolls. The power press built for this special work comes in here and in this

The upper die descending forms the first bend when by the operation of the one lever the gage is thrown out of the way, permitting a second set of gages to come into play by which the sheet is so located as to form the second bend and complete the rim. The body is then shaped by rolls to match the already prepared ends and the edges L are bent out at right angles.

In the assembling operation the rear end piece, Figure 2, is first placed in position over the corresponding end of the body piece and the two are placed in the dies and at one stroke of the press they are neatly and firmly seamed together. The front end of the tub is next placed over the front end of the body, then they are placed in the dies and seamed in the same way, this operation being shown in Figure 7. The press employed for this work is made with an open or removable front, which makes it possible to place the tub in the position shown.

Attention should be called to the manner of securing the seamed joints in the rim at the points indicated by RR in Figure 1. A surplus of metal is left on each edge and by means of dies provided this is notched, shaped and perforated as shown in Figure 5, the operations being performed simultaneously with those previously described.

The shape of the body of the tub allows all the legs to be made alike and these are produced complete in six operations for each. The making of the overflow pipe, which it is not necessary to describe, completes the job.

KINKS AND WRINKLES

By the Artful Dodger

Making Large Wrenches in Emergencies.—For turning nuts on large unions where there is no wrench of a size suitable for the work in hand, it is not always necessary to forge a wrench, says a correspondent of Power. For n

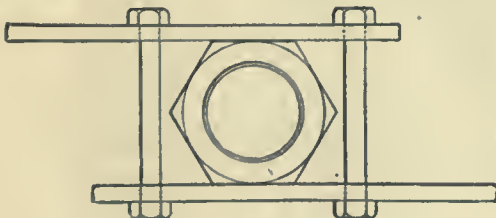


Fig. 1

brass union on a 2½-inch pipe take two pieces of iron about ½x2½ inches and 18 inches long and two ½-inch bolts. Bore holes for the bolts and screw up as shown at Figure 1. The two projecting ends coming on opposite sides will serve as handles for turning. Friction is reduced by applying force on two sides of the pipe.

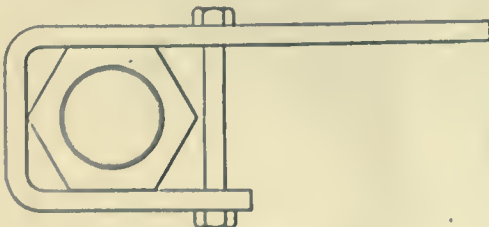


Fig. 2

Where there is not room enough to use this wrench, heat a single piece of iron, heat it into the shape of Figure 2 and join with one bolt. Turn by means of the long handle.

A Good Tempering Recipe.—For small drills, chisels, etc., for very light work, says W. F. Smith of Baltimore, heat to a dull red and cool in a bar of common soap. The temper will be about right and no drawing will be required.

Removing Ink Spots on Marble.—Ink spots on marble may be removed with a paste made by dissolving an ounce of oxalic acid and half an ounce of butter of antimony in a pint of rain water, and adding sufficient flour to form a thin paste. Apply this to the stains with a brush; allow it to remain on three or four days and then wash it off. Make a second application, if necessary.

To Write on Glass or Metals.—Use 1 to 2 parts of silicate of soda with 11 parts of liquid India ink. For white ink, 3 to 4 of silicate of soda and 1 of sulphate of borium.

Heat Lost by Radiation.—The amount of heat lost by radiation from bare pipes containing steam at 100 pounds pressure has been estimated to be about equal to two tons of coal a year for each 10 square feet of pipe surface. It has also been found that 88 per cent. of this loss can be saved by the best pipe covering.

Power Required to Raise Water.—Multiply the number of gallons per minute by 10 and by the number of feet the water is to be lifted, and divide by 33,000. Then add one-third for friction, or, if a considerable lift, or through more than two elbows, add two-thirds for friction. For example, to raise 100 gallons per minute 25 feet through a pipe with two elbows: 100×10 gives us 1,000; $\times 25$ is 25,000; divided by 33,000 gives us .757 horse-power, or three-quarters of one horsepower, to which add one-third (.25 or one-quarter horsepower) gives as the result, 1 horse-power.

To Recolor Alcohol Thermometers.—The loss of color in alcohol thermometers is not always due to fading, says a contemporary, but may be caused by the color settling to the bottom of the bulb. To stir it up well, the thermometer should be alternately plunged in water heated to near the capacity of the thermometer, or the boiling point if the thermometer registers more than 212, and an ice bath. This will cause the alcohol to flow rapidly up and down in the tube and, of course, stir up the sediment in the bulb and color the alcohol again, thus making it easily visible against the scale.

Liquid Metal Polish.—Take eight ounces of Spanish whiting, which must be perfectly free from grit, and put in one quart of gasoline. Shake up the whiting and gasoline thoroughly. You will notice the whiting settles immediately, leaving the liquid as clear as water. To remedy this and, further, to make it a better polishing agent, add to each quart of the mixture 32 drops of oleic acid—no more, no less; shake again and the whiting will not settle. Apply to gold, silver, nickel, brass, glass or any kind of metallic surface with a piece of cotton flannel, rubbing well. Polish with a piece of name cloth.

To Remove Boiler Scale.—Scale can be removed from a boiler by adding to the feed water one-quarter of a pound of soda per horse-power—then steam for several hours, using power during the cleaning—then blow-off rapidly.

Clean the boiler mechanically afterward if possible—if not, repeat the soda treatment.

Scale can be kept out of a boiler by adding an eighth of a pound of soda per horse-power to the feed water once a week.

When you are called on to put a heating plant into good condition, or do any repairing for the winter run, it's a good idea to give it the soda treatment if you think there is any reason for suspecting "scale"—then make and charge for the job and you'll make so much improvement in the heating power of the plant that you are likely to get their next job.

The Plumber's Catechism.

Describe how cast iron pipes should be caulked at the joint and why it should be done.

After having carefully yarned the joint by forcing a strand of picked oakum, moderately twisted, into the hub, with a yarning tool and then having filled to overflowing the joint with molten pig lead by one continuous pouring, the joint should be caulked uniformly with a steel caulking tool. The purpose of the caulking is to expand the lead which has contracted somewhat in cooling so that it will be solid and uniform, occupying all the interstices of the surrounding cast iron on hub and spigot. The caulking must be done uniformly so that the pressure will be exerted equally on all points of the hub, and should be begun at the point difficult to get at, which might otherwise be slighted. The pipe should be circled once by the tool lightly tapped, the force of the blows being increased on the second and subsequent tamping. A cold chisel or other tapering tool should not be used as it greatly increases the danger of cracking the hub through overpressure.

What is the least depth the ring of lead should have and how much lead should be allowed to a joint?

In order that the pressure exerted may be distributed over as large an area as possible, the depth of lead in a finished joint for 4-inch pipe should not be less than five-eighths of an inch and should preferably be somewhat deeper. The amount of lead required for a strong joint may be estimated by allowing for every joint three-quarters of a pound for each inch in the diameter of the pipe.

How can pipes be caulked when in a recess of the wall?

Wall recesses for pipe work must be large enough to afford ample working space on either side of the pipe. Some advantage may be gained by the use of offset caulking tools. If a stock has no double fittings it can be partly revolved so as to afford opportunity to make the upper joints before the lowest joint is poured.

Where should a rust joint be made?

A rust may be used outside of the fixture traps under conditions where steam or very hot water is to be carried through cast iron pipes but should not be used on any closed portion of a house drainage system.

How are rust joints made?

The material for rust joints consists of a mixture of five pounds of iron borings, free from oil or grease, and one ounce each of sal ammoniac and flowers of sulphur. These ingredients are mixed dry and then wet to a thick paste which is placed in the pipe hub and caulked like lead.

Why are putty, mortar and cement joints objectionable?

The principal objections to the use of putty, mortar and cement as materials for pipe joints are the practical difficulty in making such joints gas tight and the inflexibility of these materials when hardened.

Is there any disadvantage in having drain and soil pipe of large size, and why?

The principal disadvantages in the use of drain and soil pipes of unnecessarily large size are three: 1. The decreased velocity of flow on flat grades and consequent liability to obstruction. 2. The increased area of interior fouling surface and the larger volume of contained foul air. 3. Unnecessary expense due to use of larger sizes.

(To be continued.)

VENTILATION OF A STEAM LAUNDRY.

Proper ventilation has long been a serious problem in the large steam laundries of the country. In the ironing room of the average laundry the heat is intense, and during the hot days of summer it is not unusual for many of the workers to be overcome by the heat. However, the problem of properly ventilating and cooling the air in one of these institutions seems to have been well solved. A system which is entirely new has been in successful operation during the past year in the American Laundry at Grand Rapids, Mich.

The essential features of the system are an artesian well, a fan and engine, and a bed of coke. The well is of 5-in. pipe 315 ft. deep, in which the water rises to within 27 ft. of the surface, and from which water may be continuously pumped to the extent of 90 gallons per minute. The fan is a 120-in. steel-plate blower driven at 117 r. p. m. by a 10x12-in. plain slide-valve steam engine, and delivers 50,000 cu. ft. of air per minute under $\frac{1}{2}$ ounce pressure. The coke bed is 28 ft. long, 12 ft. high and $1\frac{1}{2}$ ft. thick, and is set vertically. The studding supporting this bed is spaced 18 in. on centers and the whole is covered with $\frac{1}{4}$ -in. mesh netting of No. 10 brass wire. Water from the well at a temperature of 48 degrees F. is delivered at the top of this coke bed and allowed to run down through to the floor below. Air for the fan is drawn in through a suitable air shaft constructed in the center of the building and passes through the wet coke bed, being thereby purified and cooled for delivery to different parts of the building.

Outside air at a temperature of 92 degrees F., after passing through the coke bed, is reduced to 62 degrees F., this temperature being only slightly increased before the air reaches the various rooms of the plant. The ironing room is 80 ft. from the cold air inlet and in this room are burned 318 cu. ft. of gas per hour, giving off a great deal of heat. Yet in spite of this, when the outside air is 92 degrees F., the temperature in this room is only 81 degrees F., the heat from all the gas burned being overcome and, in addition, a reduction of the temperature to 11 degrees below that of the outside aid being effected.

The air in the entire building is changed every four minutes. Thereby giving the employes fresh air at all times. Mr. W. H. Yeomans, chief engineer of this plant and a member of the N. A. S. E., installed the system successfully, after careful study of the conditions and requirements of the case.

Central station steam heating so extensively adopted in this country is in course of experiment in Dresden. In that city the Saxon government has established a huge central station, and from this the heat is distributed among a number of the municipal buildings, including the Royal Opera House, the Picture Gallery, Zwinger Museum, the Hofkirche, and Royal Palace. The edifices are all situated near the central heating station, which stands upon the banks of the river Elbe, whereby an adequate supply of water is always available. The station contains ten generators, producing over 55,000 pounds of steam per hour. The steam is distributed to the various public buildings by means of steam pipes laid beneath the streets. But this ingenious heating system is also utilized to fulfill a dual purpose—the generating of electricity for lighting the various edifices. The heat is generated and distributed during the early morning, when the electric supply is not required, and once the buildings are thoroughly heated, it requires but very little pressure to maintain the temperature desired throughout the day. Consequently, this arrangement enables the steam power generated during the latter part of the day to drive the electric installation and maintain the pressure required.

What a Set of Heating Specifications Should Include.

It is most important to the interests of the contractor as well as to the interests of the builder that any contract for heating work should state clearly and in unmistakable terms the essential features of material and workmanship involved in the contract. An incalculable amount of controversy would be saved if heating contractors would insist that the specifications which they are asked to sign shall really specify every important item with relation to the work. The ideal specification has yet to be written, while the specification drawn up by the average architect is very far from being an actual description of the system when completed. Many important details are neglected with the result that neither builder nor contractor is afforded proper protection. The contractor finds that many extras are required, for which, of course, he has to present a bill which is invariably disputed.

In the following paragraphs we print by courtesy of the National Builder, the ideas of L. Allen as to what a heating specification should cover. To some it may seem to deal too much with details. If this be so it is assuredly an error in the right direction.

A complete plan of specifications should at least comprise the following points, everything described in the specification being, as far as practicable, indicated on the plans, to wit:

Kind of boiler and its capacity. If a boiler be intended for power as well as heating, the specifications should state dimensions of the boiler, including diameter and length of shell, number and length of tubes, diameter of tubes, height and diameter and thickness of steam dome and dome head, thickness of shell, thickness of heads, quality of iron or steel to be used in dome, boiler, boiler-heads and dome-heads, kind and quality of tubes, list of all castings to go with boiler, size of furnace, space between grate bars, and a full list of boiler trimmings and their sizes, including gauges, gauge-cocks, safety valve, blow-off valve, feed valve and check valve, and the pressure to which the boiler is to be tested.

The specifications should also describe in detail the manner in which the boiler is to be set, and the position of the boiler should be shown on the plans, together with the space occupied by it when set.

The quality of all the pipes and fittings should also be included in the specification, and, if any preference exist for those of any particular manufacturer, goods of his make should be specified.

The sizes of steam mains, return-mains, reliefs, connection of mains to boiler, steam risers, return risers, connection of risers to mains and connections of risers to radiators should all be described in the specification, and also their positions and diameters should be shown on the plans. The return mains running nearly always below and parallel to the steam main may be omitted if the diameter of the same relatively to the steam main in all parts be distinctly specified.

The total heating surface, both inclusive and exclusive of mains and risers should be stated in the specification and its distribution fully shown on the plans. The specification should name the kind of radiators to be used and their finish, and the plans should show the precise location, length, breadth, height, and the number of square feet of heating surface in each.

The total amount of heating surface specified to be put into the building should be ascertained by careful computation based upon the character of the materials of which the building is constructed, the thickness of walls, amount of glass in the building, its situation and exposure.

This done, the distribution of the surface should be determined from considerations of greater or less exposure of various parts of the building, the uses to which different rooms are to be put, etc. No rule of thumb method will insure highest success in this part of the work, nor indeed in any other part.

The kind, number and position of all valves to be used in steam and return mains, or at the bottom of steam risers, should be distinctly described and shown in the specifications and plans and the kinds of radiator valves and air valves, their sizes and finish, and if automatic air valves with drip pipes are used, the latter and their connection with sewer pipes should also be indicated on the plan and described in the specification.

If indirect heating be employed there will also be cold-air boxes and hot-air flues to be specified and described, and the kind, sizes and location of these as well as the quality of the material to be used in them and their finish should all be distinctly stated, and, as far as practicable, indicated on the plans.

In short, the specification and the plans should be counterparts which together form a complete and unambiguous whole, including the required guarantee.

A specification should specify, not generalize in terms the value of which can in any manner become a subject of dispute. Such words as "suitable," "proper," "sufficient," "ample," and the like, figure far too conspicuously in most of the specifications prepared by the common run of steam heaters. "The boiler is to be suitably set in brick work"; "the cold-air boxes are to be made of wood or galvanized iron of suitable quality"; "the pipes in the cellar are to be properly covered with insulating material," etc.

I repeat that it is the proper function of a specification to specify what is the suitable brick setting, what is the proper material for cold-air boxes, what is the proper insulating material for the pipe, if any be needed, and how it should be applied, and so on to the end of the subject.

Frank Merwin on the Labor Question.

Editor of Domestic Engineering. Dear Sir: The conditions existing today in the building trades, as I see them, stand without a precedent. Never before has there been such lack of harmony between the various interests involved. We are confronted with a problem so serious that few men have the moral courage to foretell the outcome. Surely the day will come when drastic measures will supplant idle gossip and then and not until then can we hope for conditions that will be to the advantage and satisfaction of all concerned.

There are but a few towns in this country today where one will not find some branch of the building trades on strike. In a great many of our cities building operations are suspended pending an adjustment of grievances. The natural outcome of such a condition of affairs is the present stagnation of business. We can never hope for any great improvement until the public settles the labor question. The contractors are powerless for lack of will power. All great questions in the past have been settled by the will of the people and the question of unionism will share the same fate.

The present stagnation in business in the building line, in my judgment, clearly indicates that the public has begun a siege on "Unionville" and have also blockaded that port. The proof of this statement is as follows:

The architects throughout this country have more work

laid aside than ever before known. The writer has been astonished in his travels to note to what an extent this is true. Owners are not willing to pay double prices for labor and materials. All building operations are an investment and no sane man or body of men are putting their money into a building project for the pleasure of "attending their own funeral." Why should it cost 25 per cent more today to erect a building than it did five years ago? There was far more building then than now and there is no scarcity of material today. That the demands of labor have created this great increase in cost of construction, is a fact not to be questioned. The public being aware of this fact has simply taken issue to the extent of a general suspension of building. Architects everywhere voice this opinion and there is no better authority than they. The common expression among them today is: "No one will build who is not forced to." The unions in the building trades by their exorbitant demands have ruined the business from which they derive their livelihood, and by so doing have "cut their own throats." In the plumbing business they have not been content with demanding and forcing the masters to pay in many places high wages, but have actively adopted a scale of work to be done for a day's wage. If a journeyman does more than the scale in force in his local, he is subjected to a penalty of so many dollars fine, and a second offense means his expulsion by the local and his card called in. Then this journeyman not having a card cannot remain in the employ of the employer he faithfully tried to serve to the best of his ability in an endeavor to earn the union scale of \$4.50 for eight hours' work. If this is not extortion what is it? While the writer is aware of similar extortion in other branches of the building trades, he is content with a discussion of his own branch thereof. Is it any wonder that there is a stagnation of business? When Lincoln said "You can't fool all the people all the time," he uttered the thoughts of a broad minded man and the unions would do well to heed his warning.

The present conditions remind the writer of a boom town after the public had got wise and "pricked the balloon." The people are certainly wise to the methods at present in force by the labor unions in connection with the building trades and the general suspension of construction throughout the country is the natural result. Sober minded people are aware that exorbitant wage demands will never act as an impetus to increase building investments. The unions have been given "an inch and have taken a yard," only to find at last the folly of their acts. No individual with common sense will deny any mechanic his just wage as proven by his shown ability or deny the wisdom of the eight hour day. When unions will secretly formulate a scale of the amount of work to be done for said scale of wage, thereby restricting the efforts of its members, it is planning to defraud and, as I said before, guilty of extortion. The proof of this lies in the fact that its members guard the secret. The radical element is responsible for such unbusinesslike practices and it's the old story "Majority Rules."

What is true of the plumbing branch applies to all other branches of the building trades unions. When work ceases to be a pleasure it's time to get into some other line of business and when one does not labor honestly he is besmearing his own conscience and defrauding his employer, the public paying the tribute.

Labor unions, when organized and equipped with by-laws for the good of the organization and the public in general, will be supported by every thoughtful citizen and their efforts will be fostered and encouraged universally. There is not an employer of labor in our broad land today

who is not willing to pay any mechanic what he is worth unless he be a hypocrite and the success of such a class won't cause any worriment. On the other hand, there are mighty few men working for a living who have not an exalted opinion of their own ability and who do not think they are not being compensated too poorly. There is no better judge of what one's services are worth than their employer. It's all very well to think well of one's self and blow your own horn, but the other fellow is paying the bills.

The present stagnation of operations in the building trades should cause those who are largely responsible for it to pause and think during their leisure hours when out of work. Conditions must change before the public will again open its purse. It will pay a good price, but not a prohibitive one. It's up to the unions to resort to fair and just methods or enjoy a lunch of snowballs with water ice for dessert this winter.

FRANKLYN T. MERWIN.

DEATH OF P. J. TIERNEY.

Just as we go to press a telegram announces the death of P. J. Tierney, past president of the National Association of Master Plumbers, and a leading light in the plumbing fraternity. The immediate cause of death was heart failure, following a protracted illness from rheumatism. Mr. Tierney passed away at his home in Providence, (R.



THE LATE P. TIERNEY.

I.), at 6 o'clock on the morning of Wednesday, August 31, his age being sixty-one. The funeral will be held on Saturday morning at 10 o'clock, from the cathedral.

The news of his death just on the eve of another convention of the association of which he had been so long an honored member, will be learned with the deepest regret by hundreds who have known and respected him in the long years of his connection with the association. Mr. Tierney's unexpected demise will be felt most keenly by the officers of the association, who had learned to place a

high value on the wisdom and prudence displayed by him in the counsels of the Board of Directors of the association. He was a true and loyal friend to everyone whose friendship he had tried and learned to trust, and in his passing away the trade has lost one of its noblest representatives, a man of broad gauge and sterling character.

Generous and kindly in disposition, he was intolerant only of hypocrisy and cant.

During his term of office as president of the national association Mr. Tierney showed rare courage and fidelity in attending faithfully to the duties of his office against the advice of his physician, and while suffering from a painful malady.

He never quite recovered his health, although he enjoyed a welcome respite for several years. His death followed a return of the old trouble about three weeks ago, and cannot but come as a great shock to a host of friends.



The National Brass and Metal Company, of Minneapolis, Minn., will build a large warehouse in St. Paul to be completed in time for the spring trade.

Central Foundry Company's plant at Anniston, Ala., turned out and shipped more sanitary piping and fittings during July than in any previous month in its history.

The Globe Brass Company, of Detroit, Mich., has been incorporated with a capital of \$100,000. The incorporators are George C. Huefner, Frank W. Parsons and Louis P. Lotz.

Col. James Kilbourne, president of the Kilbourne & Jacobs Manufacturing Company, of Columbus, Ohio, has gone to Lake Gogebic, Mich., to spend a couple of weeks in fishing.

The Great Western Pottery Company, of Kokomo, Ind., is building a very large addition to its factory and two large kilns to take care of the increasing demands for its vitreous lavatories.

Most of the slate-producing companies of Vermont have consolidated, forming a company called the American Pea Green Slate Company with a capitalization of \$150,000. It is incorporated under the laws of the State of New York.

Willard A. Speakman, vice-president of the Speakman Supply & Pipe Co., of Wilmington, Del., says business in the territory about Wilmington has been good, and prospects are bright for a continuance of this condition for the remainder of this year.

The Dominion Brass Works, Limited, of Port Colborne, Ont., held a formal opening of its new plant last week, at which representatives of the company entertained the leading citizens of the village and vicinity to a luncheon. More than 250 guests were present.

F. H. Paradise, manager of the branch in Denver, Colo., of the L. Wolff Mfg. Co., of Chicago, writes that during the past two months it has been rather dull in Denver and some of the mining towns, but there are indications that business will be fair, if not very good, from the agricultural and fruit growing districts. Our business with the mining towns is not as good as formerly, but we believe business in general will pick up soon, in fact, we see indications already of improvement.

A call has been issued by Secretary C. W. Woodward, of the Association of Manufacturers and Jobbers of Plumbing

Supplies, for a meeting of that association to be held at the Hotel Astor, Forty-fourth street and Broadway, New York City, on Wednesday, September 14, at 11 a. m. Several important matters will come before the meeting, and a full representation of membership is desired. A novel feature in the form of a smoker has been added to the program of this meeting.

Heating, ventilation and especially plumbing, as it is understood in the United States, is unknown in this district, writes United States Consul E. A. Creevey, of Glaucho, Germany. Having visited all the cities and towns there, six of which have from 10,000 to 55,000 inhabitants, and also innumerable little villages, he feels safe in stating that in the application of appliances for sanitary plumbing, heating and ventilation they are worse off than were the United States twenty-five years ago.

E. V. Lewis, treasurer of the Crane Company, Omaha, Neb., believes that conditions in the territory tributary to Omaha indicate very good fall business. The season has been very good for almost all crops except wheat, and the state of Nebraska will produce a fair amount of that grain. While the weather at this time is somewhat cool for the corn crop to mature, there seems to be no doubt that Nebraska will have one of the largest yields of corn that state has produced. That being the case, Mr. Lewis considers there is no reason why business for the balance of the year should not be very good indeed.

The Central Foundry Company reports for the fiscal year ended June 30 net earnings of \$467,504, a decrease of \$197,945, as compared with the previous year. After the payment of \$231,780 bond interest, there remained a balance of \$235,724, of which a small proportion was appropriated for betterments and the remainder charged off for depreciation. This company is a consolidation of companies and firms manufacturing heavy cast iron soil pipe and fittings, with fourteen plants in New York, Pennsylvania, Maryland, Indiana, New Jersey, Tennessee, Alabama and Delaware. It has outstanding \$6,650,000 each of common and preferred stock, besides \$3,563,000 of 5 per cent debenture bonds.

For the past two years the directors have followed the policy of charging off the entire surplus to betterments and to depreciation, so that the company carries no surplus account.

At the annual meeting of the stockholders, held in Jersey City August 25, the retiring board of directors was re-elected and H. H. Spencer was added to the board, making the total number of directors twelve. The board now consists of James T. Boothroyd, George F. Crane, Alfred Fowle, Jr., George D. Hallock, Joseph Lodge, John Reid, Winthrop I. Rogers, George F. Ross, Gerard Schumacher, Charles F. Smithers, A. L. Swartz and H. H. Spencer.

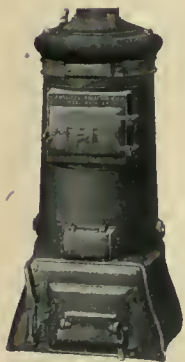
"Don't you dare to send me your magazine with the advertisements left out," wrote Rudyard Kipling a short time ago to a prominent New York publisher. The New York publisher seemed to have flattered himself that the body of his magazine was more important than his advertising pages. Of course, this is not the case.—Robert Barr, in the Saturday Evening Post.

An invention which comes from Denmark promises to supplant lamplighters. It is an arrangement for attaching to lamp posts, by means of which the gas can be automatically turned up or down at any desired hour, by simply setting the "turning up" and "turning down" hands to the hour desired on a numbered dial. When wound up this attachment will work for a fortnight without attention of any kind, and effects an enormous saving both in gas consumption and labor.

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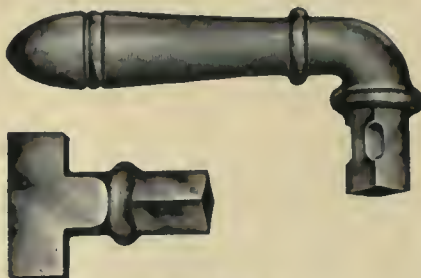
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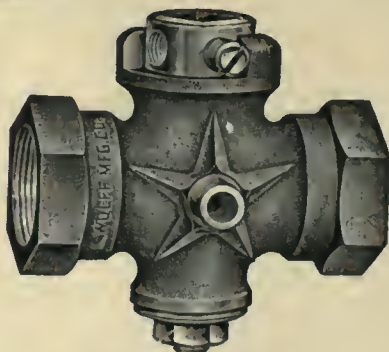
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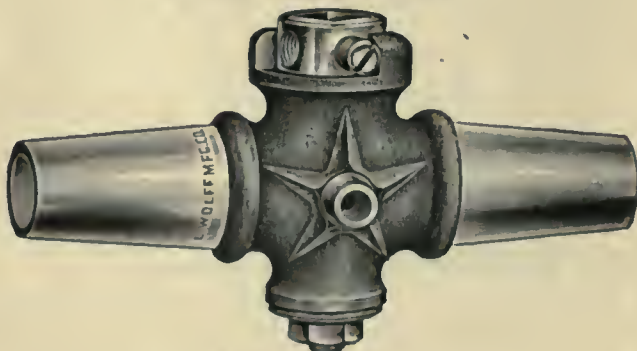
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The Era Heating Company, of Providence, R. I., has been incorporated with a capital of \$100,000 to manufacture and sell heaters.

The National Regulator Company is now located at 324 Dearborn street, Chicago. Its former place of business was No. 204 on the same street.

The Mason Heater Company, of Bellaire, Ohio, went into the hands of a receiver last week because of lack of immediate working capital. Judge Hollingsworth appointed Attorney Fred Spriggs receiver.

The Ferguson Company, of Brooklyn, N. Y., has been incorporated with a capital of \$10,000 to manufacture devices for heating water. The incorporators are H. V. Rutherford, Gustav Frieling and Samuel Newmark, of New York.

George Waddington has severed his connection with the firm of Peterson & Waddington, of Bloomington, Ill., to accept a traveling position with the Kellogg-Mackay-Cameron Company, of Chicago. He will cover the territory in the vicinity of Bloomington.

The International Heater Company, of Utica, N. Y., has sold the Economy Foundry property, at Syracuse, N. Y., to the Central Iron Works Company, of Syracuse. The plant was erected in 1888 and was sold for \$30,000. William H. Brown will be manager of the new company, which will employ about 100 men.

The New York Radiator Company will erect an important addition to its Utica (N. Y.) plant at an early date. The entire structure will be of iron, including the walls and the roof. The building will be 72x72 feet and one story in height, which will permit the employment of about seventy-five more men.

Borden Company, of Warren, Ohio, is bringing out a new line of power pipe threading machinery, having just completed the first pattern, the "A" type power machine of range ½-inch to 2 inches. These machines are equipped with Borden's Improved "Solid-Adjustable" dies and are manufactured both in belt and direct electrical motor driven. Power machines of larger range will be brought out as soon as possible.

Machinery Day at the World's Fair will be observed Saturday, September 10. It is proposed to have everything in Machinery Hall in operation on that day. This includes more than 30,000 horsepower in a power plant comprising steam engines, turbine engines and various motors. Practically all of the machine tools will be in operation, and, for the latter, electricity will be the motive power throughout. More than 20,000 invitations will be issued by the exhibitors in Machinery Hall for the special festivities, in connection with the celebration of Machinery Day.

A clever sharper who travels under the aliases of J. F. Johnson, West, Russell, etc., is said to be working the heating trade rather successfully and has secured a number of small amounts by representing himself to be the representative of several boiler manufacturers. His familiarity with the trade and with the affairs of the firms which he claims to represent generally disarms suspicion, while his engaging manners cause his victims to fall an easy prey. He is described as having dark, wavy hair and full beard, dark eyes and complexion. He is about five feet eleven inches in height. A broad nose and prominent ears are noticeable features.

For engaging frankness we commend the trade to look at the introduction to the new catalogue issued by Blake & Andros, of 28 Portland street, Boston, Mass. This preliminary statement is so different to the sort of writing we are accustomed to find in boiler catalogues that we quote it in full:

"Everybody has read of the wonderful construction of the 'one-hoss shay' that was so good and perfect in every part that it 'run a hundred years to-a-day,' etc., and we could almost afford to re-name our heater and call it the 'one-hoss shay heater,' as its long term of good service (twenty-three years) entitles it to the greatest respect. It is the father of all hot water heaters without pressure in New England and, in fact, in the United States, and when we first put it on the market we made the claim that it was the 'most durable, economical and efficient,' etc., heater, but we had no means of knowing this to be a fact, and only our hope and belief were excuses for making such an assertion (for it was only such). When, however, you come to think that there is a new hot water heater for every day in the year and all of them, even those who are as 'children yet in swaddling clothes' make the same claim with not so much foundation as we had (for our heater was always of the right principle), then you wonder 'where you're at' and if all their claims can be true; so we abandoned the assertion of 'most durable, economical,' etc., and simply say to you that our 'Crescent Improved Hot Water Heaters' with proper care will last you as long as you will need artificial heat, and that's long enough."

We are glad to note, by the way, that this catalogue shows that the firm is gradually adding to its lines. The successful dealer in heating supplies nowadays carries a full line of goods, and his customers don't have to shop around to get an order filled. To their line of "B. & A." valves they have added straightway quick opening valves, with and without unions, and they are also handling the Kinnear-Hood steel radiator. The catalogue shows several piping plans in which their special fittings are used, a feature which enables the fitter to get a good idea of their utility:

INDUSTRIAL STOCKS

The following are the prices bid and asked on the following industrial stocks, listed on the Chicago and New York Stock Exchanges, at the close of business on Thursday, September 1:

Central Foundry Co., com.....	1	1½
Central Foundry Co., pfd.....	7	8½
American Radiator Co., com.....	55	
American Radiator Co., pfd.....	120	
Trenton Potteries Co., com.....	8	12
Trenton Potteries Co., pfd.....	72	76
U. S. Steel, com.....	13½	13½
U. S. Steel, pfd.....	62¾	62¾
Republic Iron & Steel, com.....	7½	7¾
Republic Iron & Steel, pfd.....	44	44½
Nat. E. & S. Co., com.....	14	16¾
Nat. E. & S. Co., pfd.....	72	82
Amalgamated Copper	56¾	57
U. S. Cast Iron Pipe Co., com.....	10½	10¾
U. S. Cast Iron Pipe Co., pfd.....	56	57

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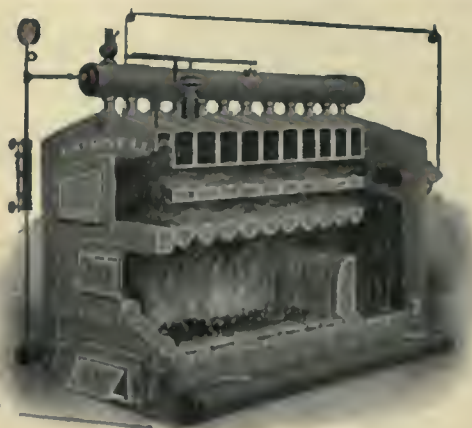


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CALIFORNIA

G. C. Sweeney has contracted to do the plumbing, gas-fitting and sewerage work in the new Christian Hospital for \$1,245.

The Russell-Vail Engineering Company has been awarded a contract by the Supervisors of Stanislaus county for replacing and repairing the steam heating plant in the courthouse at Modesto. The cost is \$1,800.

The Board of Managers of the Agnews State Hospital will receive sealed bids up to 8 p. m. September 13, for performing the labor and furnishing the materials necessary for the erection, construction and installation of a complete system of drainage, water supply, plumbing and showers, including steam connections for same, and setting of finished material throughout the wards, tiers and pantries of the Agnews State Hospital in Santa Clara county. T. S. Montgomery is secretary of the board.

The petition presented to the City Trustees of Bakersfield last week for the passage of an ordinance requiring that all plumbers doing business in that city shall be required to pass an examination before being allowed to work, is now pending. It is signed by a large number of business and professional men and is gotten up by the plumbers' union. The petition does not specify whether both master plumbers and journeymen shall be compelled to pass the test or whether it shall apply only to the journeymen who do the actual work. It is intimated that the real object of the movement is aimed against a certain plumbing establishment recently started by a contractor who is employing non-union help. There is, however, no proof of this shown and the wording of the document does not establish it. The petition asks that the examining board consist of one master plumber, one journeyman plumber and the present plumbing inspector. The plumbing inspector is J. E. Yancey.

UTAH

Sealed proposals will be received by the Constructing Quartermaster, 512 Dooly building, Salt Lake City, up to 11 a. m. September 7, for constructing one barrack building and one guard house, including plumbing, gas piping, heating and electric wiring, at Fort Douglas. Captain S. V. Ham is the Quartermaster.

Louis C. Kelsey, of Ogden, has secured the contract for the construction of the new sewer system in District No. 9, his bid being \$41,498.26. The other bids were: Gibbons & Co., \$42,492.37; P. J. Moran, \$48,759.18; J. B. O'Neal, \$51,498.79; Wheelwright Brothers, \$52,992.02; Gil-martin & Zitsman, \$54,260.87.



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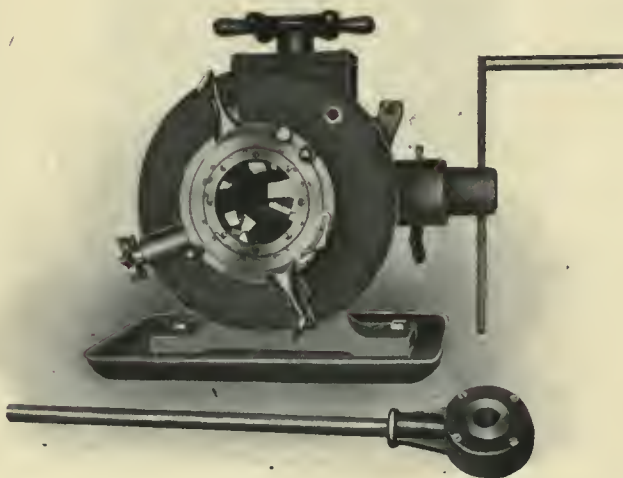


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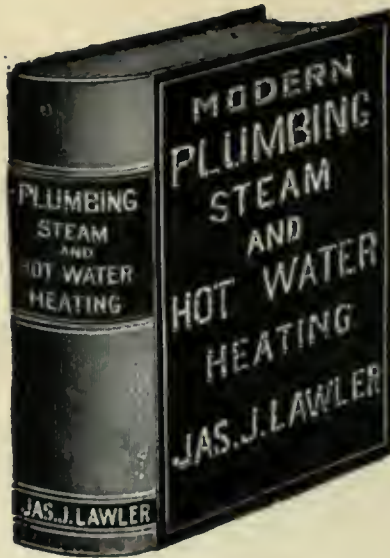
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CHICAGO

Albert V. Conratt, secretary of the Great Western Pottery Company, of Kokomo, Ind., was in Chicago on Wednesday this week.

George Wolfel, Jr., who has been office assistant to James Mackay, secretary of the Kellogg-Mackay-Cameron Company, will hereafter travel in Central Illinois for his company.

Senor L. Quesada, who has for some time been connected with the Havana (Cuba) branch of James B. Clow & Sons, visited the Chicago office of the firm this week preparatory to taking up his duties as the company's Mexican representative.

George E. Dixon & Co. have been awarded the contract for heating the large office building in course of construction at the corner of Madison and State streets, Chicago. The company has also secured the heating of the Wanamaker building in Philadelphia at \$193,600.

The Crane Company, of Chicago, was well represented at the summer meeting of the Institution of Heating and Ventilating Engineers, held in Liverpool, England, a few weeks ago. E. Richardson, of the home office, and Theo. F. Dredge, its special representative in London, being present.

Plenty of work in sight, but very little being let, is the verdict of the Chicago heating trade. A great deal of heating work is being figured, and this will eventually result in busy times for the fitters, provided nothing unfortunate intervenes. Of jobbing work there is a sufficiency to keep nearly everyone reasonably busy.

The Chicago delegation to the National Convention of Master Plumbers at St. Louis will leave about a hundred strong from the Illinois Central Station at noon on Sunday. A special train may be chartered for the trip if, as is possible, delegations from near-by points decide to east in their lot with the Chicago master plumbers. In any event it will be a jolly bunch and the boys are looking forward to a week of fun as well as to some pretty serious work.

Notice to take out permits within twenty-four hours or close down their establishments has caused a scramble among owners of "sweatshops" to pay the annual license fee of \$1. The order is the result of a tour of inspection on the West Side by Chief Sanitary Inspector Hedrick and his assistants. In many instances improvements were ordered where violations of the ordinances were found. Permits will be withheld at these places until the improvements are made. The inspectors have found 736 shops, although the records in the City Clerk's office show that only 234 licenses were taken out last year.

A number of Chicago plumbers whose places of business are in the north and northwest part of the city held a picnic at Schiller Park on Sunday last and repeated, on a small scale, the success of the recent picnic at Thornton Park. The grounds had been reserved for the picnickers and a quiet little family party made the most of this opportunity to get acquainted and to enjoy the delights of a day spent "far from the madding throng's ignoble strife." Everybody brought his wife or his sweetheart along and the best of good spirits prevailed. It is to be

hoped for the harmony of the Chicago trade that these little social events will become more and more common.

MIDDLE STATES

Plumbers at Columbus, Ohio, must continue to submit drawings of their proposed work when they apply for permits, according to the local board of health, which has declined to grant the request of the Master Plumbers' Association to abrogate that rule.

Among the Plumbers at Aurora, Ill.—There seems to be quite a little work in the way of new building here, but after it is divided between eleven shops there is not an excess for any one.—Gus Mylius and wife have taken in the St. Louis fair.—Nick Zack and wife have taken in Yellowstone Park.—J. J. Ruddy and wife took in the Elks' doings at Indianapolis.—T. E. Walters & Co. have incorporated under the name of the T. E. Walters Plumbing and Heating Company. The officers are: T. E. Walters, president and manager; G. R. Walters, secretary and treasurer. The latest accounts are that the shares are selling at \$1.25. The company proposes to do a more extensive business than in the past. Several of its men having taken stock makes it a very strong firm.—Fred Taylor and wife, of Taylor & McGuire, are taking in the sights in and around Boston with the old soldiers.

NOTES FROM THE WEST

Delegates from the Master Plumbers' Association of Kansas City, Mo., chartered a special observation car to take them to St. Louis to attend both State and National Conventions. The State Convention was held Friday and Saturday, September 2 and 3. The delegates came on a daylight train Thursday afternoon and E. D. Hornbrook, president of the National Association, was a member of the party.

Greater New York

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W. J. Lockwood, of J. G. Graham & Co., 113 Chambers street, has been touring the West for some time.

An important meeting of the boiler manufacturers was held in New York City on Wednesday, August 24.

Joseph Schneider, of the Bronx, has moved his plumbing establishment from 2057 Anthony avenue to 4173 Third avenue.

Frederick Humphrey has opened a plumbing shop at 1094 Manhattan avenue. He will engage in plumbing work in its many various branches.

The Manhattan Master Plumbers' Association held an important meeting at the Grand Union Hotel in regard to the strike on Wednesday, August 24.

J. W. Cooney, of 355 West Twenty-sixth street, is engaged with the plumbing for a new building at 557 Fifth avenue for the Jones Construction Company.

John G. Gent, of 1011 Tremont avenue, has the contract for the steam heating in a new building for the Wallack Bros. at One Hundred and Twenty-second street and Third avenue.

W. F. Webber, representative of Jenkins Bros., has just returned from a months' trip in Newfoundland. Mr. Webber is a native of these parts and a trip there occasionally is most enjoyable.

The following bids have been opened for the plumbing in the Stuyvesant High School: John J. Kenny, \$2,587; Frank J. Fee, \$3,282; William C. Ormond, \$3,370; the John Spence Company, \$5,139.

James King, for some time connected with the Thomas G. Knight Company, of Brooklyn, has severed his connection with that concern to accept a position with the Atlantic branch of the National Lead Company located at 100 William street.

The employees of the Alexander Bryan Plumbing Company, 1 Madison avenue, recently broke away from their cares and troubles and went out to Lohbauer's Bay View Hotel at Westchester, where they held an outing and picnic. To say they had a good time is putting it very mildly indeed.

The Yonkers Master Plumbers' Association held their annual outing and picnic on Saturday, August 27. A full representation of salesmen as well as master plumbers and guests were on hand. An elegant dinner was served to those assembled and a most enjoyable time was spent by all. A fuller account of this affair will appear in our next issue.

Outing of the Bronx Master Plumbers.

The regular outing of the Master Plumbers' Association of the Bronx was held on Saturday, August 27, at Lohbauer's Bay View Hotel, Westchester. With a brass band in attendance the members and party left the association headquarters, 719 Tremont avenue, at 8:30 a. m. in special cars for the scene of festivities. Upon arrival a sumptuous breakfast awaited the merry crowd. The chief event on the program—the ball game between master plumbers and salesmen—was pulled off next. The game was an exciting one and resulted in no end of good-natured bantering. The master plumbers, however, proved too much for the "Knights of the Road," and won an easy victory. The line-up was as follows:

Master Plumbers—Walsh, pitcher; Weber, catcher; McEverly, Burke, Schaub, Schneider, Irving, Rehier and Walkley.

Salesmen—Disbrow, pitcher; Ryan, catcher; Kelly, Hemenway, Dick, Ball, Salzmann, Tatem and Anketell.

Score: Plumbers, 16; Salesmen, 13.

The next events on the programme were the Hundred Yards Dash, Fat Men's Race, Three Legged Race, Shoe Contest and Boat Race. The winners were awarded as follows:

First heat hundred yards dash: Won by Chas. Halley.

Second heat hundred yards dash: Won by Fred Weber.

Third heat hundred yards dash: Won by S. Welch.

First heat three legged race: Won by Weber and Kelly.

Second heat three legged race: Dead heat.

Final heat three legged race: Won by Weber and Kelly.

Fat Men's race: Won by John Rogge.

Shoe race: Won by John Schaub.

Boat race: Won by Webb and Schaub.

The bowling contest resulted as follows: First prize, \$7, won by E. Stolz; second prize, \$5, won by Martin Klett; third prize, \$3, won by Joseph Hlewatch; fourth prize, \$1, won by J. Burke.

The shooting contest was won by Frank Walkley, who received a handsome fountain pen as his prize.

At 5:30 p. m. all again adjourned to the dining hall to partake of one of Lohbauer's celebrated shore dinners, which ample justice was done.

The salesmen were very much in evidence and more than lived up to their reputation as jolly good fellows. Among those noticed by the Domestic Engineering scribe were: Frank J. Tatem, Joseph Hlewatch and W. T. Anketell, of the Colwell Lead Company; M. L. Rosenberg, J. H. Mars, Robert F. Seiffert and Arthur Kyle, of the Standard Plumbing Supply Company; Charles J. Perian, of the American Radiator Company; Emil Vonhof, of the Blue Gueripel Company, Inc.; H. M. Pfeffer, of the Nason Manufacturing Company; James Gribble, of the Raymond-Van Praag Supply Company; J. G. Kelly and Frank E. Sweet, of the Metropolitan Plumbing Supply Company; Wm. F. Schick, of Wm. F. Schick & Co.; C. J. Weber, of Dimock & Fiak Company; Julius Kline, of the Thomson Meter Company; Wm. Buess, of Buess Marble Works; L. W. Carle, of the Robertson Stone Ware Company; L. M. Hemenway and John Rogge, of the Contractors' Supply Company; James F. Brown, of J. P. Duffy & Co.; J. J. Webb, of Henry Huber & Co.; W. C. Gross, of George W. Heiland; Thomas F. Nisil, of E. F. Keating Company, and Charles McConnell.

Representatives were also present from the different public departments of the Bronx. Samuel J. Coreoran, secretary of the Brooklyn Association, was present as an invited guest.

Much praise is due the excellent committee on arrangements for the efficient way in which they performed their duties.

With the melody of "Auld Lang Syne" in their ears and a promise to be present at next year's reunion, all wended their way homeward.

Boston and New England

JOHN K. ALLEN, President. ELMER CRAWFORD, Gen'l Manager

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Offices: 41 Lincoln Street. Telephone, 1251 Oxford

William Mitchell & Son, of 1 Province court, will install the plumbing in the new dormitory of Williams College at Williamstown, Mass. Lynch & Woodward will see to it that it is heated in proper shape.

David Craig has started work on both heating and plumbing in the new store house building in Portsmouth Navy Yard. He will also begin work in the same lines on the Luce House now building at Cohasset during this week.

Burkell & Co., of 28 Union Park street, have been awarded the contract for installing the plumbing in a new \$100,000 residence now being built in Jamaica, W. I. This looks like another convert to the benefits of the late unpleasantness with the Dons.

Frank E. Pierce, formerly shipper for the heating firm of Isaac Cnflin but for the past three years connected with the W. M. Pattison Supply Company of Cleveland, Ohio, was in Boston last week and spent a merry seven days with his old friends and co-laborers. Everybody had a hearty welcome and a strenuous grip of the hand for "Frank."

Henry Hussey & Co., of 84 Harrison avenue, will install the plumbing work and Bradley & Chatman, of 28 Union street, the heating and ventilating system in Dr. Sargent's new four-story gymnasium to be erected in Cambridge. The fixtures include a large swimming tank in the basement, showers and toilets on each floor and a large lecture hall and a running track in the upper story.

The Automatic Heating Company, 410 Board of Trade building, has been awarded contracts for temperature regulation in the J. M. Langyear residence in Brookline, the Burdett College building in Lynn and the Bay State National Bank building in Lawrence, the last named being an eight-story store and office building.

The contract for plumbing and heating and piping the new building at Massachusetts avenue and Windsor street for the E. & R. Laundry has at last been let. Mr. H. L. Rose, of Western avenue, Cambridge, will install the plumbing and John E. Dickinson, of 151 Clark street, same city, will look after the heating and piping. This building is now under roof and will be equipped with all of the most approved appliances known to the trade as well as with every convenience for the use of the employes, including kitchen and dining or lunch rooms. Cambridge is the home of laundries and the E. & R. building is going to lead the bunch.

There is always some business under way in Brookline, the richest city in the United States, and even a presidential year or a general lull in the trades hardly deters her millionaire inhabitants. This season has proven no exception, and building goes smoothly on. E. F. Crosby has the contract for the \$80,000 apartment block on Aspinwall and Brookline avenues, now building for F. M. Lutte. F. H. McMahan has three good contracts for plumbing now coming on and has been busy all summer. Kendrick Brothers report a good season in both heating and plumbing, while H. H. Muldowney is kept on the jump looking after his many plumbing jobs.

CONNECTICUT

The Hartford and New Britain Master Plumbers Association held its annual outing at Compaunce Lake, near Bristol, on Wednesday, August 24. The executive committee of the State Association was invited to take advantage of this outing to hold one of its regular meetings. Only business of a general nature was transacted. Delegates were chosen to represent the State Association at the National Convention. Those chosen were: P. J. Tormay, of New Britain, the president of the State Association; J. D. Cronin, of New London; T. P. Rourke, of New Haven, and G. D. Mills, of Bridgeport. While the executive committee was in session the New Britain and Hartford men played a game of baseball. The two teams were evenly matched and the game had to be called at the end of the second inning on account of errors. Umpire Langdon announced that the score stood 5 to 5. After dinner Langdon gave a little talk on the art of umpiring. When this was over the crowd broke up to amuse themselves in various ways, boating, bowling, etc. The trip back was made late in the afternoon.

Strikes and lockouts still number twenty-one, the Brooklyn strike having been settled this week, while the Chicago stock yards steam fitters have gone out in sympathy with the butcher workmen's union. Following are the strikes and lockouts now on record, with their causes: Worcester, Mass., lockout; St. Paul, Minn., lockout; Atlanta, Ga., lockout; Lincoln, Neb., closed shop; Youngstown, Ohio, lockout; Louisville, Ky., closed shop; Evansville, Ind., no helpers; Montclair, N. J., lockout; Greensboro, Ky., lockout; Columbus, Ohio, closed shop; Erie, Pa., lockout; Cortland, N. Y., higher wages; Bangor, Me., shorter hours; Burlington, Iowa, lockout; Jersey City, N. J., no helpers; Sandusky, Ohio, lockout; Sacramento, Cal., lockout; Terre Haute, Ind., lockout; Montreal, P. Q., higher wages.

Philadelphia

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Kenneth Wilson, of north Fifth street, is doing the plumbing for a new store and residence at Olney, for Julius Dolimer.

George Connor, of 4464 Richmond street, has the contract for the plumbing in two houses in Bridesburg for V. Grensheimer.

Bullman Bros., of 2534 North Fifth street, are busy with the plumbing for the new houses at Crescentville, Pa., for Arthur Sutton.

James Bros., of West Chester, are installing the heating in the residence of George F. Worrell and also in the residence of Joseph Anderson, at West Chester.

The plumbing contract for the new \$200,000 Lyric Theater which is being built at Broad and Cherry streets for Charles B. Dillingham has been awarded to George F. Uber & Co., of Thirteenth street and Fairmount avenue.

All is hustle and bustle up at 831 Arch street, where the Pierce, Butler & Pierce Mfg. Company is moving in. Their old place in the Exchange is now being fitted up by the Prize-Painter Stove & Heater Company as its Philadelphia office.

On their return from the St. Louis convention the master plumbers of Philadelphia will play a championship ball game with a picked team from the supply houses. The contests at the orchard last Monday incited so much interest that the members of the craft are anxious to prove their superiority as ball players.

Charles F. West has been appointed superintendent of the Master Builders' Exchange, 18-24 South Seventh street. Owing to the sudden death of William H. Matthews, who formerly held this position, the office has been vacant. Mr. West is well known to the trade, having been connected with the heating business for some years.

One of the largest contracts given out in this city in some time is that of the plumbing for the new Wanamaker Building, which has just been awarded to William MeCoach, of 1607 Sansom street. This includes the installation of over 200 water closets, 135 lavatories, etc. The plumbing contract alone amounts to \$80,000. The heating has just been awarded to Geo. E. Dixon & Company, of Chicago.

PHILADELPHIA MASTER PLUMBERS' OUTING.

A more delightful day could not have been selected for the outing of the Philadelphia master plumbers than Monday, August 29. The members and guests with their wives and sweethearts began to pour into the orchard at Essington, which was the scene of gaiety, at an early hour. This delightful spot is beautifully situated on the Delaware, and is most suitable for affairs of this kind. The first event on the program was a ball game between master plumbers and supply men. The line-up was as follows: Master Plumbers—Reagan, Lentz, Righter, Smith, Miller, McEntee, Britan, Mackay and Grimes. Supply Men—Walters, Clark, Birkstresser, Lowner, Rockwell, Stewart, Hanley, Murdock, Surpler and Butler. The morning's game resulted in a victory for the salesmen, the score being 32 to 28. "Billy" Sheridan officiated as umpire. At 1 p. m. a lunch was served on the lawn and eagerly disposed of by the tired players. The next event consisted

of a series of races, including a Fat Men's race, Lean Men's race, Running High and Running Broad jump, a Free-for-all Hundred Yards dash and a Ladies' race. The results were as follows:

Fat Men's race: Won by Geo. F. Uber; E. H. Mackay second.

Lean Men's race: Won by Joseph Reagan.

Running High jump: Won by Mr. Powell; Howard Smith second.

Running Broad jump: Won by Dennis V. Kennedy; Howard Smith second.

Free-for-all Hundred Yards dash: Won by Maxwell Gilbert; Harry B. Lentz second.

Ladies' Race of Fifty Yards: Won by Mrs. Smith; Miss Clark second.

A second ball game was pulled off next, which resulted in a very close game, indeed, the score being 9 to 3 in favor of the master plumbers. Immediately after this, long tables were placed under the trees, where one of those famous Essington dinners was served to the party.

Through the courtesy of Internal Revenue Collector Wm. McCoach, the Samuel H. Ashbridge was secured for a moonlight sail. So instead of returning by train as was the original intention, the happy crowd was ushered aboard the Ashbridge, which is the property of the city, and enjoyed a delightful trip down the Delaware as far as Chester and return, landing all at Chestnut street wharf in good season.

An outing would not be complete without the ever desired presence of the salesmen. This year's delegation seemed endowed with an unusual amount of vim and fun, and did a great deal to make this outing such a howling success. Representatives were present from the following houses: John Douglass & Co., Froelich Bros., Keystone Supply Company, Ronalds & Johnson Company, Stambach & Love, Pierce, Butler & Pierce Manufacturing Company, American Radiator Company, Model Heating Company, H. B. Smith Company, Cloud Manufacturing Company, and the Nonpareil Cork Company.

This will undoubtedly continue to be a regular event in the history of the association and will be looked forward to with enthusiasm.

Frank Mousley is installing the heating in the residence of A. Pullman Cobb in Wilmington.

PENNSYLVANIA

James Bros., of Westchester, are installing the heating in Dr. C. E. Woodward's residence and also in the residence of Wilmer Pennypacker, both in Westchester.

Shick & Hansman, of Catasauqua, are installing the heating in a large public school in that place and also in a new office building at Lansford, Pa., for the Lehigh Coal and Navigation Company.

Charles A. Fisher, of 140 McClure avenue, Allegheny, has just completed the plumbing in Charles E. Hoffman's handsome residence on Brighton road. This is one of the finest dwellings in that city.

Samuel C. Hartwell, of the plumbing firm of C. C. Hartwell Company, Ltd., New Orleans, La., died at his home in that city Sunday night, August 28. Mr. Hartwell was one of the best known of the younger master plumbers in the city. He was only 37 years old and had been in poor health the last year. His wife and two children survive him.

METAL MARKET

New York Metal Market.

Closing New York prices, car lots, on August 30.

Copper, Lake, nominal.....	\$12.75
Copper, Electrolytic	12.70
Straits Tin	27.00
Spelter	5.10
Pig Lead	4.30
Antimony (Cookson's)	7.00
Tinplates, Coke, 100 lbs., 14x20, f. o. b. mill.....	3.30

Chicago Iron Market, September 1.

Southern, No. 1, Foundry.....	\$13.65
Southern, No. 2, Foundry.....	13.15
Lake Superior Charcoal.....	14.75@15.00
Lake Superior Coke Iron No. 1 Foundry....	13.75@14.00
Lake Superior Coke Iron No. 2 Foundry....	13.25@13.50
Malleable Bessemer	13.50@13.75



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SAN FRANCISCO

T. J. Healy & Son are to do the plumbing, gas fitting and sewerage work in two buildings containing flats to be erected on Chestnut street by Catherina Cerelli, the work to amount to \$1,440.

Jacob Holle, of 20th and York streets, is plumbing and gasfitting thirty-nine flats in different parts of the city, and he also is doing the plumbing in the Marble Palace on Market street. Increased business has made an enlargement of his shop necessary.

Kiernan & O'Brien have taken two nice contracts this week aggregating over \$7,000. One of these is from the Guarantee Loan Company and is for installing a complete system of plumbing, gas fitting, sewerage and hot water piping in a three-story building on Buchanan street. The other is for the plumbing of a number of flats for the Goewey estate.

G. C. Sweeney, of 45 Eleventh street, has just landed a nice contract valued at \$6,200 from Louis Friedlander for the plumbing of seven buildings containing twenty-one flats located at the corner of Sutter and Webster streets. Mr. Sweeney is also to do the plumbing, gas fitting, sewerage and hot water piping for the five-story building now being erected by Morris Oser on Eddy street. This work amounts to \$6,363.

Several of the master plumbers who are to attend the National Convention at St. Louis have already left and more will follow this week. Many plumbers from the interior of California as well as from other states will attend the conclave of Knights Templar to be held here beginning September 10. Some will come as delegates and others as visitors. The city is being decorated in gala style and the electric illumination will excel anything in that line hitherto attempted here.

OREGON

W. H. McPherson Company, of Portland, Oregon, has secured the heating and ventilating contract for the new Masonic Temple to be erected at Spokane.

Fred Uttley is to have charge of the plumbing and tinning department of the Nevada Mercantile Company's establishment at Reno, Nev. A building is now being erected for the company, which will be ready for occupancy about September 15.

A few journeymen plumbers are still on strike because of the refusal of proprietors of plumbing establishments at Portland, Oregon, to accede to their demands for eliminating all but one apprentice from each shop. The strike has not affected other branches of the trade up to this time. Efforts have been made to effect a settlement of the contention, but nothing has been accomplished. The strikers are insistent in their demands, while the proprietors are determined that they will employ as many apprentices as they need.

M. F. Dicus has removed his plumbing establishment at Douglas, Ariz., to the Swartz shop, which he recently purchased, and where he will in the future have his quarters.

BUSINESS VENTURES

Macon, Ga.—The Central Georgia Plumbing and Heating Company has started in business.

Lima, Ohio.—Theodore G. Cheid, of Bluffton, has opened a plumbing establishment in the new building on the corner of Main and Elm streets.

Denver, Colo.—The J. E. Kiefer Plumbing Company has been incorporated with a capital of \$10,000. The incorporators are J. E. Kiefer, John Kiefer and W. W. Anderson.

Bend, Oregon.—S. C. Caldwell, of Albany, and H. R. Satchwell, of Newberg, will soon open a plumbing and hardware establishment on Wall street.

St. Louis, Mo.—The Fitzgerald Plumbing Company has been incorporated with \$2,500 capital. The incorporators are Wm. F. Fitzgerald, R. E. Herweck and Catharine Fitzgerald.

Denver, Colo.—The Larimer Heating and Plumbing Company has been incorporated with a capital stock of \$7,500. The incorporators are G. B. Larimer, B. G. Larimer and J. P. Larimer, of Denver.

We do not fill our reading columns with puffs and write-ups. Our subscribers pay for reading matter and they get it straight. But our advertising pages contain the cream of the trade's offerings and repay study. In writing advertisers please mention Domestic Engineering.

BUSINESS OPENINGS

Geary, Okla.—This town will construct a system of waterworks to cost about \$52,000. Geary is located in Blaine county.

Spencer, N. C.—A waterworks system and a sewer system will be constructed here within a few months. Spencer is located in Rowan county.

Carrollton, Ga.—The citizens have voted to issue bonds to the amount of 45,000 for the construction of water works and a sewer system.

Kiel, Wis.—This city is considering the construction of waterworks and a sewerage system. Kiel is located in Manitowoc county and has about 900 inhabitants.

St. Clairsville, Ohio.—The citizens have voted to have a waterworks system, to be installed by private enterprise. St. Clairsville is located in Belmont county and has about 1,200 inhabitants.

Carlisle, Ky.—The City Council has decided to build a water works system, \$25,000 bonds having been voted for that purpose. Carlisle is located in Nicholas county, and has about 1,000 inhabitants.

Hawkeye, Iowa.—A waterworks system will be constructed here this fall. Hawkeye is located in Fayette county, on the Chicago, Milwaukee & St. Paul Railway, and has a population of about 1,000.

North English, Iowa.—The citizens have voted to construct a waterworks system. North English has about 600 inhabitants and is located in Iowa county on the Chicago, Milwaukee & St. Paul railroad.

Aberdeen, Miss.—This city will construct a sewerage system at a very early date. Aberdeen has about 3,500 inhabitants, is located in Monroe county on the Mobile & Ohio railway and the Illinois Central railroad.

Clarksville, Tex.—This city will construct a system of waterworks to cost about \$30,000. Clarksville is located

in Red River county on the Texas & Pacific Transcontinental railway and has about 1,600 inhabitants.

Clutier, Iowa.—A system of waterworks will be constructed here this fall. Clutier is located in Tama county.

Eldridge, Iowa.—A waterworks system to cost \$7,660 will be constructed here this fall. Eldridge is located in Scott county, on the Chicago, Milwaukee & St. Paul Railway, and has nearly 200 inhabitants.

Frederick, Ill.—It is reported that \$10,000 waterworks bonds have been sold. Frederick is located on the Chicago, Burlington & Quincy Railroad and the Illinois River in Schuyler county, and has about 350 inhabitants.

Halstad, Minn.—A waterworks system to cost \$7,735 is being constructed by W. D. Lovell, of Des Moines. Halstad is located in Norman county, on the Red River and the Great Northern Railway, and has a population of about 350.

Albia, Iowa.—A waterworks system will soon be constructed here by the Albia Water Company, which has just been incorporated. Albia is located in Monroe county, on the Chicago, Burlington & Quincy Railroad, and has about 2,600 inhabitants.

Winfield, Kan.—A waterworks system will be constructed here to cost in the neighborhood of \$89,000, bonds having been voted for that amount. Winfield is located in Cowley county, on the St. Louis & Santa Fe Railroad, and has about 5,000 inhabitants.

BOOKS AND CATALOGUES

The Knott-Van Arnam Manufacturing Company, Fort Wayne, Ind., send us a new catalogue of fine closet combinations, showing only such of their many specialties as are in most constant demand.

The W. E. Caldwell Company, of Louisville, Ky., send us their 1904 illustrated catalogue, "million" edition, showing their tanks, towers and tubs. That a million people are interested in such goods is a revelation.

The B. & E. Corporation, 48 Binford street, Boston, Mass., is supplying the trade with a new two-page folder illustrating the B. & E. lines, including ballcocks, water relief and vacuum valves and brass pipe hangers.

The Powers Regulator Company, of Chicago, are sending to those interested a beautifully printed pamphlet bearing the fascinating title "Home Comfort." In a brief, succinct way it describes temperature regulation to the mind not technically educated.

"**The Ellis System of Sewage Removal**" is the very appropriate title of a new catalogue just issued by the Ellis Company, 216 West Twenty-third street, New York, N. Y. The catalogue is 6x10 inches, handsomely executed and very fully illustrates and describes their line of sewage removing and other specialties.

The first production of printed matter from the Phillips Flushing Tank Company, 66 Batterymarch street, Boston, Mass., has just come to our hands. It is in the form of a folder illustrating by sectional view their new flushing tank. The unique feature of this device is a flushing tank without a ball cock.

An attractive new catalogue and price list of brass fittings has just been received from the Hamlin & Emery Brass Company, 26 Island street, Boston, Mass. The catalogue is 5x7 inches, well bound and illustrated with fine drawings and provided with size and price tables for handy reference and quick computation.

Utica, N. Y., has long had the credit of being the snowiest and coldest city in the United States. The International Heater Company, of that city, sends us an interesting blotter showing two illustrations—one of the first snow

of the season on October 28, 1903, and another taken April 20, 1904, showing it "still snowing."

The Gurney Heater Manufacturing Company, 74 Franklin street, Boston, Mass., send us a new book showing their steam and hot water heating apparatus, accompanied by a letter calling attention to the improvements made in larger and deeper fire pots, clinker doors and larger fire doors. The book is of that generous proportion which has always characterized the Gurney books, and is well printed and illustrated.

"**Great Golfers**" is the title of a beautifully-illustrated book by George W. Beldam, which explains and elucidates the whole science of the ancient game of golf. It is really an instruction, by illustration, of the modes of play adopted by the best known living masters of the game. Action photography proves that golf is played successfully in many ways and styles; the methods may vary, but the general principles are the same. There are many points for consideration that will be suggested to the devotees of the fascinating game, even by a casual glance, in regard to grip, stance and swing; and the solid volume with its two hundred and sixty-eight page illustrations will no doubt prove an invaluable work of reference to all golfers. The Macmillan Company, of New York City, is the publisher.

A rich vein of copper has been discovered in Algeria, near Ain-Sefra. Researches have proved beyond a doubt that 6,000,000 tons of ore can be extracted, and it is hoped that the ultimate output will amount to several million tons. The great drawback to successful working is the price of coal in this district, viz., 75 francs (\$15) a ton. To the north and west of Ain-Sefra, copper, iron and lead have been discovered, and there are indications of the existence of zinc. In the opinion of *La Revue Minéralurgique* the discovery of this mineral wealth should lead to the early construction of a railway from the port of Bone to this district.

Readers of Domestic Engineering are urged to examine the advertising pages of this paper. Enterprising manufacturers and jobbers are showing novelties for plumbing and heating men. There is no better way to keep abreast of the times than by reading our advertising pages. In writing advertisers please mention Domestic Engineering.

"All of Which I Saw, and Part of Which I Was."—II.
Reminiscences by Andrew Young, Ex-President of the N. A. M. P.

If ever the history of the National Association of Master Plumbers of the United States is written, to New York will be accorded the honor of its organization. Not only were they untiring in the building up of the local organization, but carried to a successful conclusion all the preliminaries necessary for the organization of the national body, bore the burden alone and gave of their time and money unsparingly. It is a pleasure to me to bear witness to their loyalty and to their generous help and earnest work in days when work and sympathy meant much for the future of the national body.

The plumbers of New York received less benefit than perhaps any other organization during the early days of the national association, while they were ever in the van. I hope that today they are receiving some measure of reward for their faithful work in behalf of association measures.

New York gave to the national association some of its greatest leaders—men whose work and labor in the cause were invaluable; men who at great personal loss gave their best energies to our upbuilding.

June, 1884, saw a gathering of plumbers in New York ready and delegated by their local associations to organize the national association. Considering the elements composing the first meeting the work of organization proceeded harmoniously and successfully. The necessary committees were appointed to perfect rules and by-laws, etc., and the convention closed its labors after electing Col. Geo. D. Scott as the first president of the National Association of Master Plumbers of the United States.

It was eminently proper that New York should have the presidency, and in the person of Col. Scott, a most accomplished gentleman, the delegates honored themselves in their selection.

tion, notably in the organization throughout the east of local associations. This work, involving as it did much sacrifice of time and money, was cheerfully borne by the members of the New York and Brooklyn associations.

The first year of an organization such as ours is probably the most trying period in its history upon the officers. Many delegates, having participated in the work of the convention, returned to their homes expecting the officers of the national association immediately to relieve them of every fancied or apparent injury to their business, and mete out punishment for real or imaginary injuries which upon investigation were found to be of their own creation. They had yet to learn that time and patience were neces-



The H. Mueller Manufacturing Company's Exhibit at the World's Fair.

Unfortunately for the complete success of Col. Scott's administration trouble arose in his executive committee that seriously embarrassed his work and plans. Despite this circumstance, his administration was marked by the excellence of its work in many directions, notably in the organization of local associations in many states and a crystallization of action and work in a common cause.

An active support was given to the movement and support for trade schools, and much progress was made in disabusing the public mind of the idea that the plumber was a common enemy.

The high character of Col. Scott's life as a citizen and his prominence, gave force and character to his actions, while his sterling honesty put to shame the voices and action of his detractors. Considering the many difficulties he encountered his administration may be considered a most successful one and reflects great honor upon him for his untiring work on behalf of our association. He was ably supported by the majority of the New York associa-

sary for the adjustment of many of the things complained of, and that well considered action was essential for the future, even if their burdens should have to be borne a little longer.

Again, time was a necessary and the best balm to help old jealousies die out and be forgotten, thus paving the way for broader and more mature action. In many of these troubles time was required to teach our members to control their own actions and learn that if concessions were to be made by the dealers we, in equity and justice, should give something in return.

How wise the actions of the national association was is borne out by the fact of our existence, as today we stand the best protected business in this or any other country. That the business is not as profitable as it might be, lies with ourselves alone, and before conditions improve in the trade greed and selfishness must be relegated to the rear and all must stand firm in their loyalty to and support of our common cause.



"Flagg" Malleable Fittings

"Flagg" Keystone Unions

THE STANDARD SOFT METAL SEAT UNION



The Tinker's Dam.

In days of old,
The tinker hold

Was something of a sport.

(The men who play
His part to day

Are of a gentler sort.)

But, later on -

His wrath now gone -

His conscience felt a qualm;
"That cuss, he'd say,

I met to day.

Was it worth a tinker's dam!"

Then, if one tried
To wound his pride

By grudging him his fee:

Replying quick,
"To ward the kick,"

He sometimes used a D.

Dorrich, Conn. — John Ireland

Readers of Domestic Engineering are urged to examine the advertising pages of this paper. Enterprising manufacturers and jobbers are showing novelties for plumbing and heating men. There is no better way to keep abreast of the times than by reading our advertising pages. In writing advertisers please mention Domestic Engineering.

HOW TO MAKE COLLECTIONS.

The following is in answer to a request for a few words on the collection end of the business, brought out by a reader interested in Mr. Jordan's letters on accounting.

In Part II of the series just ended under the heading of "Systematic Accounting Essential to Success," the statement was made that the best collector is a methodical looking up of all prospective customers before any work is done. And in taking up the question of collecting, this point will be the best of all to keep in mind. It has come to a point nowadays in the mad rush for business that firms take on almost any work to keep up the race, the fact of getting the work blinding the eyes to the greater fact that the one the work is for is a long way from good. There are a great many points to be considered before any job should be started. First. Is it at a price to bring a profit? Second. Is it for a person or persons who will pay promptly, or is it for some who will pay when he feels like it? Third. If it is some piece of jobbing work without an estimate being given, will the customer accept the bill without question, or will he delay payment on account of objection to the bill, so that the expense of collecting the bill will more than take up the profit on the work? All of these phases must be considered when we take up the matter of the collection end of the business.

The great point to work for is the reduction to the minimum of the number of accounts that will need collecting; something that everyone in business can do if proper and effective methods are pursued. There are many ways to do this, the most effective being the use of the local rating exchange if one exists. Next to this comes the obtaining of references from the prospective customer, and then looking up by this means how well he pays. If you find

CLEANING

whether given frequently by the careful housemaid or strenuously by the zealous janitor, does not destroy the original brightness of

BENEDICT-NICKEL Seamless Tubing

It is "white metal clear through" and there is no plated surface that can be worn away by rubbing.

All products including Seamless
Brass and Copper Tubing are
described in our "Table Book."

Benedict & Burnham Mfg. Co.
Waterbury, Conn.

New York, 255 Broadway. Boston, 172 High Street



that he pays promptly, go ahead, provided his job does not amount to a sum that is beyond dealings that you know of. If you find that he is one who pays when he agrees, go ahead even if the time of payment is longer than your usual terms. But if the reports you obtain are of slow pay but finally good, or slow and uncertain pay, or any other similar report, you would be far better off to let the other fellow get the job. But you may say, "If I let all the jobs that are not gilt-edge go by, how can I do business?" This would be a natural question to ask after advice is given to throw down all but the very surest trade. But the advantage of this comes in other ways.

When you decline to accept work except of the sure pay order, you are insuring more work. How? Because you save a great deal of expense that would go into collecting slow or bad accounts; you save the possible total losses that would occur from a bad account; your money coming in promptly will enable you to discount all your own bills, and as a result from discounting your bills you can get better prices on goods as the supply houses will be all the more anxious to sell you. Then what results do we obtain? You will be able to underfigure your rival who has the bad and slow accounts, and therefore get all the work you want of the very best people. It is not the quantity of work that a man does that brings the future business, but the quality of the work that he does for the price he gets; and in saving all the money which would go into the collection of the bad accounts, you can either underfigure or give more for the same figure than the one who has to spend the time getting in enough money to pay for the expense of the last job.

Here, then, is the idea of the best method of collecting. Perhaps this does not satisfy the one who made the request for a few words on the collection end, as I fear he might have a lot of "dead" ones which he is unable to bring to life. I can say this because I do not have any idea who the person is who made the request. But if the inquirer wanted advice as to how to get some of the old ones, it is a hard thing to get. All I could say on that matter would be to "Camp out on the man's door step until he paid up." That is the only thing that can be done when a bad account has come into the books.

Allowing that we have what we consider all good accounts on the books it must be borne in mind that people are not going to run until they lose their breath to pay when the account is due, or on the first day of every month. Right here comes in again the point mentioned in Part IV of the article mentioned. The custom of the majority of men in the plumbing and heating trade is to make out bills by the month. Some only make out a bill when they are in need of money, and then expect the customer to pay right up. I thoroughly believe that in this trade the worst feature is the slackness in making out the bills. There is no time that the bill can be made out as intelligently as at the completion of the work to be billed. If the bill is made out at that time and sent immediately to the customer, there can be no excuse for non-payment when the first of the month comes, as the bill-head should state explicitly that no claims will be allowed after five days.

When the first of the month comes a statement of each account is made and forwarded to the customers either by mail or by someone connected with the business who will deliver the statement personally and solicit payment. As the statements are made out the names and the amounts due will be listed in the bills receivable book, from which list the head of the business can get a line on the money due. Here is where the business will profit from the knowledge that the customers are good, by going for the money at the exact time it is due. In a great many cases a good sum of money is allowed to stand on the books which is perfectly good, only the man is afraid to ask for it for fear of offending the customer. This should not be so, as any man in business today expects to be asked for money when it is due if he does not send it. Therefore, do not let an account go more than a few days beyond the time it is due without asking for it. If you do not get the money get a promise for the money on a certain date. On that date be right there to get it, and do not let the customer say that he had it when he agreed, but as you did not come after it he used it somewhere else; for if you should let a time like this go by it will be harder the next time.

In the case of a slow account there is a saying that will be found of good effect to remember, i. e., "You can catch more flies with molasses than you can with vinegar." With a person who is slow pay it is simply a case of coaxing along, getting some, at least, on account as you go along. With the great majority it will do more harm than good to threaten force, as the best part of the slow kind are hardened to anything of this sort. If you have tried for two months to get the amount of the account, simply have your attorney write a letter which will probably do the business. Of course if it does not, legal steps will follow, providing the amount of the account warrants any such action. All through, the time should be watched, and if the account looks bad a lien should be placed on the property to insure protection.

Summing up the whole matter, the best collector is proven to be the judicious selection of customers to do work for. Then the bills should be sent promptly, and payment requested immediately at the time the account is due. If payment is not made the circumstances governing the case will dictate the method to be pursued, as the non-payment may be from good reasons, in which case it should be watched closely and collected when the reason for not paying is removed. In the pumping and heating trade the number of accounts is not very large in each business, and no elaborate system of collecting is needed. It is simply necessary for the owner of the business to keep in constant touch with all the accounts, and not let any one of them get to be old without finding the reason therefor.

If these matters are given the proper attention, there is no reason for money to be lost in the general run of the business, except only the cases of absolute dishonesty and fraud that are constantly occurring in all lines of trade.

J. P. Jordan, Accounting Engineer.

J. J. **RYAN** & CO.

68-74 West Monroe Street, CHICAGO, ILLINOIS

MAKE "FAULTLESS"
FULLER WORK

New York Representative: Thos. H. Hutchinson, 101 Beekman St.

Calls Attention to Error.

Pittsburg, Pa., August 7, 1904.

Editor of Domestic Engineering. Dear Sir: I desire to take advantage of your offer for further explanation on Mr. Jordan's series under the head of "Systematic Accounting."

In finding the burden of expense which should be added to estimates he says: "Divide the total of labor column by the sum of expense, tools, equipment, etc." I have endeavored to apply this rule, but by doing so I find that percentage would be 500—which, of course, is not correct. I append figures in manner in which I have endeavored to follow his rule:

Insurance	8.00	1893.00	Pay roll.
Profit and loss.....	20.00	1720	
Expense	269.00	—	
Rent	47.00	1730	
		1720	
		344.00	

Note: Repairs of tools, 1000
etc., charged to expense. Percentage 5.503

Am I in error in understanding your rule?

Would be pleased to receive further explanation in next issue of Domestic Engineering. Respectfully yours,
A. R. Jones.

P. S. Desire also to state that I like the improvement in weekly edition over that of the old monthly. I find your technical articles very interesting.

Pittsburg, Pa., August 7, 1904.

Reply by Mr. Jordan.—In Part V of the series, "Systematic Accounting Essential to Success," issue of July 30 of Domestic Engineering, an error which the writer admits to be unpardonable was made in the

instructions to find the percentage of general expense to be added in estimating the cost, and finding the actual cost of all work.

Attention to this error has been called by A. R. J., Pittsburg, and it is appreciated, as the mode of procedure is exactly reversed. The idea is to find the percentage of the expense to the labor, and this can be done in but one way, i. e., to divide the expense by the labor. Reference to the original manuscript of the article shows that the error was made in the final copy which was sent in for publication, the words being reversed.

The correct method is, using the same words as in the article, as follows:

"The total of the columns expense, equipment, tools and repairs and replacements will be found for the full month; also find the total of the labor column, remembering that this does not include salaries which should be under expense. Dividing the total of the three columns previously found by the total labor for the month, we get the percentage of the general expense, or burden, which must be added to all estimates, and to the actual labor costs when found."

We regret that this error was made. It is simply a reversal of the correct method, as would be quickly shown when tried. Of course, to obtain the percentage of one number to another, the first is divided by the last; and the mere fact of so simple an error is the unpardonable part.

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RED CROSS PIPE JOINT CEMENT



want it to remain so; you also realize that IF the compound IS of such a nature as to not only make a tight joint which WILL remain tight, but will also prevent rust, so that the joint can be readily taken apart at any time, it will be an IDEAL Material. When you use it you eliminate uncertainty, and are SURE of the best results.

RED CROSS CEMENT is WARRANTED to do all this, you have your money back if it does not FULLY fill the bill. It is intended for screwed joint work and service with Water, Steam, Gas and Air. It is not intended for flange joint work or for service with Oil and Gasoline. It is a NEW product, the result of a long continued search. An effort to find a material which would make a tight joint and be proof against the action of chemicals and electricity. The last mentioned feature is very essential as electricity is everywhere today, and the old lead compounds afford no protection whatever against its action. Having found the materials our work was not completed. To pulverize Asbestos until it is as fine as flour is not an easy task and there were others equally hard, but one by one they were overcome and the result is this cement.—Proper consideration is given to Manufacturers and the Plumbing and Steam-Fitting trade. Ask your Supply House for discounts. If they do not carry RED CROSS CEMENT, write us direct and we will either advise you where you can procure it, or fill your order ourselves. MANUFACTURED BY

THE EDGEcombe CO., - INDIANAPOLIS, IND., U. S. A.

HAVE YOU EVER BEEN troubled with a LEAKY PIPE-JOINT? You never will be IF you use RED CROSS CEMENT.

EVERY TIME you make a joint in pipe work, IT IS NECESSARY to use some kind of compound, or cement, to make it tight; and you not only want it tight when made, you

PATENTS

767,450. Valve Mechanism for Basin-Outlets. Gustive A. Sorderlund, Somerville, Mass.

Richard T. Ford, Rochester, N. Y., is placing Cooper's goods in an operation in that city.—Adv.

767,498. Steam-Actuated Valve. Leger Picard and Gaudias Bureau, St. Roch de Quebec, Canada.

Harry Coffin & Son, Philadelphia, are plumbing the Overbrook Presbyterian Church, using Cooper's closets, lavatories and other plumbing fixtures.—Adv.

767,516. Hydraulic Ram. Ernest H. Foster, New York, N. Y.

M. Delehanty's Son, Albany N. Y., is using Cooper's fixtures in some work he has on hand.—Adv.

767,532. Pipe-Wrench. Charles H. Thurston, Boston, Mass., assignor to himself, W. H. Gardiner, Jr., Canton, Mass.; C. N. Whiting and W. B. Nichols, Boston, Mass., and W. S. Griffith, Worcester, Mass., trustees.

H. L. Hurlburt, Philadelphia, is plumbing the Calvin Presbyterian Church, using Cooper's closets and lavatories.—Adv.

767,600. Hydraulic Valve. Magnus Sjoberg, McKeesport, Pa., assignor to National Tube Company, Pittsburg, Pa., a corporation of New Jersey.

Smith & Forbes, Boston, Mass., are remodeling the plumbing in a residence at Whitinsville, using Cooper's Nautilus closets.—Adv.

767,698. Water-Purifying Apparatus. Cass L. Kennicott, Chicago, Ill., assignor to Kennicott Water Softener Company, a corporation of Illinois.

Smith & Forbes, Boston, Mass., are doing some work in Brookline, using Cooper's Nautilus closets.—Adv.

767,810. Water-Heater. John H. George, Newark, N. J.

The Keith & Fitzsimons Company, Toronto, Ontario, is using Cooper's closets and some other fixtures in some work it has on hand.—Adv.

767,848. Ball-Cock. George E. Stillman, Providence, R. I.

George W. Suplee is plumbing the residence of Mr. Charles H. Roberts at Wynnewood, Pa., using Cooper's closets, baths, lavatories and other plumbing fixtures.—Adv.

767,849. Faucet. George E. Stillman, Providence, R. I.



Rapid
BATH HEATER

Its Distinctive Features

An aerated burner
No screens (of any kind)
Perfect Combustion
Forced draft
No vent pipe
Simplicity of Construction
20 per cent. more efficiency
Price all right

List \$25.00

It's easy for every dealer to know all about these distinctive and valuable features of the "RAPID". Order sample, install it, see for yourself.

You take no chances, EVERY ONE fully guaranteed—Send us your orders—Prices right—no delay in filling—Catalog and prices for the asking—write now.

Rapid Heater Co., Limited
GRAND RAPIDS, MICH.

W. Mashinter & Co., Toronto, Ontario, are using Cooper's fixtures in some work they have on hand.—Adv.

767,904. Waste-Pipe Trap. Theodore Linke, New York, N. Y.

Stephan Brothers, Council Bluffs, Iowa, are using Cooper's goods in some work they have on hand.—Adv.

767,285. Furnace-Valve. Julian Kennedy, Pittsburg, Pa.

Robert W. Kyle Co., Wheeling, W. Va., are using Cooper's goods in some operations in that city, and also in Fairmont, W. Va.—Adv.

768,014. Filter. Harry Marsh, Detroit, Mich., assignor to the Hygeia Filter Company, Detroit, Mich., a corporation of Michigan.



Results are the only Crucible test. If you have not gotten them, look to us, and get best results, not once, but all the time. We can demonstrate this, if you'll try us.

McCullough-Dalzell Crucible Co.

PITTSBURG, PA., U. S. A.



William M. Anderson, Philadelphia, is remodeling the plumbing in a residence, using Cooper's Nautilus closet.—Adv.

768,042. **Valve.** Henry G. Giunna and Hans O. C. Isenberg, Honolulu, Hawaii.

Jacobsen-Bade Company, Portland, Ore., are placing Cooper's Nautilus closets in a residence in that city.—Adv.

768,155. **Hydrocarbon-Burner.** Thomas Simons, San Francisco, Cal.

W. G. Reinhard, Lebanon, Pa., is plumbing the Nurses' Home, using Cooper's closets, lavatories, baths and other plumbing fixtures.—Adv.

768,529. **Lubricator.** Charles B. King, Detroit, Mich.

Henry Jackel, Philadelphia, is installing Cooper's Nautilus closets, lavatories and bath in a residence on Thirtieth street.

768,215. **Flushing Apparatus.** John Denton, Paterson, N. J.

George W. Schreiber, Lebanon, Pa., is plumbing a fine residence in that city, using Cooper's closets, lavatories and other plumbing fixtures.—Adv.

This paper covers the entire territory and reaches a vast field. It is thereby qualified to impart to the plumber a lot of valuable information.

TRADE WANTS

WANTED—A FIRST-CLASS SALESMAN TO CALL UPON the wholesale trade. Address Plumbers' Woodwork, care DOMESTIC ENGINEERING, 64 North Jefferson St., Chicago. tf

WANTED—A salesman for Vacuum Heating System; take charge of branch office in a northwestern city. Address No. 190, care of DOMESTIC ENGINEERING, 64 North Jefferson St., Chicago, Ill.—9-10.

FOR SALE—My Plumbing and Heating business, which has been established for several years and is at present enjoying a good trade. The business is in a splendid location. Address W. J. Wells, Decatur, Ill.—tf.

WANTED—POSITION AS SALESMAN. THOROUGHLY posted in Plumbing, Mill and Steam goods. Twelve years' experience. Have wide acquaintance in South and West. Address No. 178, care DOMESTIC ENGINEERING, 64 North Jefferson St., Chicago, Ill. tf

HEATING AND VENTILATING ENGINEER DESIRES POSITION as estimator, superintendent of construction or buyer, or position as traveling salesman with manufacturing or jobbing house. Twenty years' experience as a contractor. Address H. J. Barron, 26 Morningside Ave., New York, N. Y. tf.

YOUNG MAN THOROUGHLY ACQUAINTED WITH THE steam and hot water business desires position as engineer, manager or superintendent of a reliable concern. West preferred. Best of references. Address No. 188, care of DOMESTIC ENGINEERING, 18 South Seventh St., Philadelphia, Pa. tf.

WANTED—GOOD RELIABLE PARTIES TO HANDLE THE Weld Hot Water Tank Regulator in Chicago, Buffalo, Cleveland, St. Louis, Pittsburg, Milwaukee and adjacent territory; also other large cities in United States. Liberal inducements to right parties. Write for particulars. See our advertisement on page 21. Address George A. Weld Company, 41 Lincoln St., Boston, Mass. tf

WANTED—BY A MAN OF LONG EXPERIENCE, THOROUGHLY qualified, up-to-date and reliable, position as superintendent or manager for a good plumbing house. Expert knowledge of high class plumbing, bath drainage, accounts and rapid estimator. Would consider position as traveling man. Unquestionable reference as to past record and ability. Address No. 191, care of DOMESTIC ENGINEERING, 64 North Jefferson St., Chicago, Ill. p-10

MANUFACTURERS DESIRING REPRESENTATION FOR THE sale of Plumbing, Steam and Gas Goods among the first class plumbers of this community can have same from one of the best posted men in the business by corresponding with the writer, who gives matters of this character his personal attention. Address W. L. Dunne, 331 Carolina St., Pittsburg, Pa. tf

POSITION WANTED—A GENTLEMAN OF MORE THAN ordinary ability and experience in the manufacture of plumbers', gas and steamfitters' brass goods wants a position as superintendent or foreman with a concern making this class of goods. Am strictly up-to-date in the building of all the latest and improved labor saving tools, molding machines and patterns. Can handle men to the very best advantage. A good position with a chance for advancement being more important than a large salary. Address No. 189, care of DOMESTIC ENGINEERING, 58-64 N. Jefferson St., Chicago, Ill.

DOMESTIC ENGINEERING

Plumbing, Heating, Lighting, Ventilating.

WEEKLY

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RASMUS HERLOV.....Associate Editor
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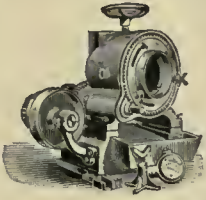
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Entered in the Postoffice in Chicago, Illinois, as mail matter of the second class, Dec. 12, 1901.

Member of the Trade Press Association.
Member of the Manufacturers' Credit Co.

SEPTEMBER 3, 1904.

FORBES PATENT DIE STOCK



No. 78 Hand or Power.
Range 2½ to 4 in. R. H.

Catalogue

for the asking.

THE CURTIS & CURTIS COMPANY

13 Garden Street, Bridgeport, Conn.

JOBBER WATCH JOBBER

FOR OUR NEW CATALOGUE

IT'S COMING !

WE MAKE LAVATORY AND BATH COCKS,
TRAPS, LEGS, SUPPLY PIPES, WASTES AND
OVERFLOWS AND COMBINATION FIXTURES.

AMERICAN BRASS WORKS

CINCINNATI, OHIO

"The Home of the Firebox."



Send for Our Catalogue and Prices.

CHICAGO
167 E. Lake St.

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KEWANEE, ILL.

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MENTION DOMESTIC ENGINEERING

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St. Paul, Minn.—The Dwyer Heating and Plumbing Company has been awarded the contract for putting in the plumbing in the new comfort station at Phalen Park at \$2,286, which was \$12 lower than the bid of Holt & Dahlby.

Guthrie, Okla.—The Oklahoma Iron Works have been awarded the contract for plumbing in the Banner, Capitol Hill, Central and Lincoln schools. The cost will be about \$5,000.

Ellis Automatic Sewer Lift

Operated by steam or compressed air.

For the removal of Sewage and other liquid waste below the Sewer Level

Ellis Automatic Celler Drainers

Write for Catalog

THE ELLIS COMPANY

216 West 23rd Street

New York City



THE WILHELM THE MODERN

TWO BEST BOILERS

The "Wilhelm" is a high-grade copper range boiler tested to 350 pounds and guaranteed to stand a working pressure of 150 pounds. There can be no better boiler made.

The "Modern" is for use where the pressure does not exceed 100 pounds, so that is the guaranteed working pressure. It is tested to 200 pounds.

Write for Circulars and Catalogs to JAMES HAYES ENGINEERING CO., 100 N. 3rd St., PITTSBURGH, PA.

Very attentive attention to business.

For Sale by all Dealers of Pressure Boilers.

HAYES MFG. CO., PITTSBURGH, N. Y.



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PORCELAIN ENAMELED LAVATORIES

are made with the knowledge that if they are not just right they are not good enough to go out bearing our **"Green and Gold"** guarantee label.

We thoroughly inspect every fixture to see that it is just right, and when we are satisfied that it is we put our label on it. That is why when you buy **"Standard"** Lavatories you are buying right, and when you sell them you can say the same thing to your customer; our guarantee means all that it implies. If the label is missing, it is positively not a piece of **"Standard"** Ware.



Othello—Plate P535

"Standard" Porcelain Enameled **"Othello"** Design Lavatory, with Slab, **"D"** Pattern Bowl, Overflow, Apron and Back all in one piece, with Concealed Wall Hanger, Nickel-plated Waste Plug, Coupling and Rubber Stopper, Plate P656 Fuller Pattern Faucets with China Handles, Indexes and Unions, Supply Pipes and **"P"** Trap with Waste and Vent to Wall.

DIMENSIONS

Length 21 inches. Height of back 8 inches. Bowl 11 x 15 inches. Depth 18 inches.

Plate P 535, enameled all over as described	-	-	-	-	-	-	\$22.75
Plate P 535 A, enameled all over, less Faucets, Supply Pipes and Trap	-	-	-	-	-	-	13.00
Plate P 535 B, enameled exterior, as described	-	-	-	-	-	-	20.00
Plate P 535 C, enameled exterior, less Faucets, Supply Pipes and Trap	-	-	-	-	-	-	10.25
If with Enameled Brackets, add	-	-	-	-	-	-	1.00

The **"Othello"** is a new design not shown in any of our previous catalogues. The above illustration, description, dimensions and prices are from our new catalogue **"P."**

Standard Sanitary Mfg. Co.

DEPT. 2, PITTSBURGH, U. S. A.

MENTION DOMESTIC ENGINEERING

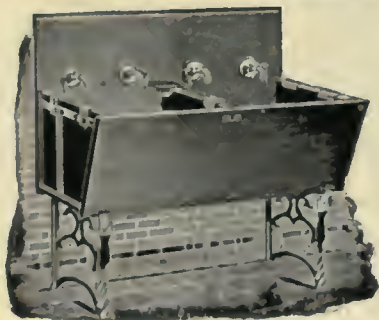
New Pattern Integral Enameled Iron Lavatories.

"D" Bowls and Extra Large Roll Rims, with and without Aprons. These Lavatories are of the very latest and most improved design, and can be put up with either concealed or exposed brackets.

Special prices to the Trade upon application.

Manufactured by

A. Weiskittel & Son, Baltimore, Md., U. S. A.



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Seething, boiling scalding water: then a sudden change to the coldest ice water, or, fill with acid if you like—it's all one and the same thing to the Euclid.

Whatever the test, Euclid Trays and Sinks will meet it to your satisfaction. They don't

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They're an article that puts dollars into the dealer's pocket and spreads satisfaction among his customers—a good thing to tie to. Our catalogue tells the story in detail of what they are; our discounts, why you should handle them. Write for both.



READ THE ADVERTISEMENTS



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One of Atlanta's modern sky scrapers. Equipped throughout with “Hajoca” closets and “Kenney” Flushometers. This building is one of the many modern structures recently built in the South in which Haines, Jones & Cadbury Co's fixtures are installed.

Hajoca goods are right

HAINES, JONES & CADBURY COMPANY

Plumbers' Supplies and Sanitary Specialties

Main Office and Showrooms,

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San Francisco, Cal.



MENTION DOMESTIC ENGINEERING

WHY WE MAKE IT

BECAUSE BY SO DOING WE
FILL A WANT AND AT THE
SAME TIME MEET A STRONG
DEMAND.

THE ALTON CLOSET BOWL

IS WITHOUT EQUAL FOR
PUBLIC USE.

SOLID FLUSHING RIM.

MASSIVE BOWL.

HEAVY BASE.

Write for Circulars.

PATENTED



FIG. A.216. THE ALTON.

WHY YOU WANT IT

BECAUSE IT IS THE MOST
NEARLY PERFECT PRODUCT
OF THE SANITARY POTTERS'
ART AND OF THE SANITARY
ENGINEERS' SCIENCE.

THE WATROUS AQUAMETER

IS A PERFECT ACTING FLUSH-
ING VALVE DISPLACING BY
RIGHT OF SUPERIORITY THE
HIGH TANK CLOSET.

Nos. 227-237

Washington St.

FEDERAL COMPANY

CHICAGO,

ILLINOIS.

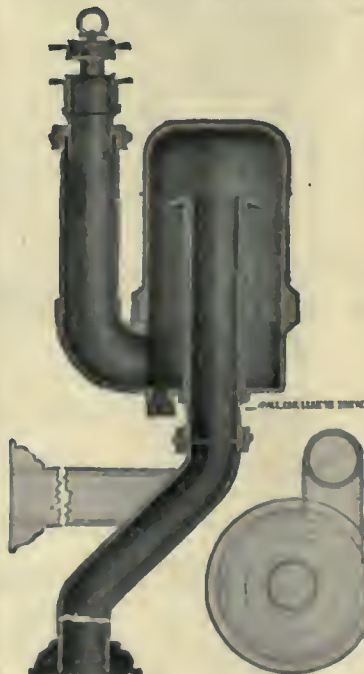
BALLS



Not of the rubber or baseball variety but made
from copper or zinc in all sizes and styles. Also
Flush and Supply Pipes, connected Wastes and
Overflows, Traps; Hinges, Ells and Offsets for
low down tanks, Brass or Bronze Castings, Stamp-
ings from sheet steel, copper and brass. Quota-
tions made on B. P. or samples.

DIAMOND STAMPED WARE CO.
DETROIT, MICHIGAN.

This Shows It All



The only trap
with centripetal
and centrifugal
action produced
by waste inlet
entering body of
trap at a tangent.

THE "POSITIVE"

Trap will carry
off anything
which will pass
through the
strainer.

CATALOGUE
FREE

The Ohio Brass & Iron Mfg. Co.
CLEVELAND, OHIO.

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Notice! Users, Plumbers, Jobbers and Manufacturers of Syphon Jets and Syphon Hoppers.

United States Letters Patent No. 425,416, granted to Robert Frame and Charles A. Neff, April 15, 1890 controls broadly the syphonic principle in all closets, and as is well known these closets, i. e., syphon jets and syphon hoppers, are the most sanitary and satisfactory closets now on the market.

The undersigned have secured the exclusive license to manufacture and use, and license others to manufacture and use this Patent, and licenses under it have been secured by following named Sanitary Earthenware Manufacturers:—

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The Bellmark Pottery Co.,.....Trenton, N. J.
The Brian Pottery Co.,.....Trenton, N. J.
Camden Pottery Co.,.....Camden, N. J.
Elite Pottery Co.,.....Trenton, N. J.
Fidelity Pottery Co.,.....Trenton, N. J.
The Great Western Pottery Co.,.....
.....Kokomo, Ind., and Tiffin, O.
Ironsides Pottery Co.,.....Bordentown, N. J.
Keystone Pottery Co.,.....Trenton, N. J.

John Maddock & Sons,.....Trenton, N. J.
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Standard Sanitary Pottery Co.,.....Elizabeth, N. J.
The Trenton Potteries Co.,.....Trenton, N. J.
Universal Sanitary Mfg. Co.,.....New Castle, Pa.
The Wheeling Potteries Co.,.....Wheeling, W. Va.
The Willets Mfg. Co.,.....Trenton, N. J.
Mercer Pottery Co.,.....Trenton, N. J.

No other Sanitary Earthenware Manufacturers than the above are authorized to make or sell syphon jets and syphon hoppers, and any person **making, selling or using** such closets made or sold by any unlicensed manufacturers will be liable to prosecution for past as well as future infringements.

POTTERIES SELLING CO., Trenton, N. J.



THE IMPROVED DOUBLE Paddock Water Filter

Is designed to be placed in the basement to filter the entire supply for any size building, Steam Boilers, etc.

Manufactured by

**The Paddock Water Filter
Company**

314 POTOMAC AVE., BUFFALO, N.Y.

Excelsior Grease Trap



Well and favorably known; two sizes for hotels and restaurants and residences. Get list price and trade discounts.

SPROUL & MCGURRIN
GRAND RAPIDS, MICHIGAN, U. S. A.

Manufactured by

OTTO BERNZ

Manufacturer of a complete line of plumbers' tools, small brass work, etc.

All Jobbers
Carry Our
Goods and Sell
at Factory
Prices

**NEWARK,
N. J.**



Pat. Pump Furnace



Cut Glass
Pull



Pat.
Shave Hook

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COALFORD, TRENTON, N. J.

MANUFACTURERS OF

Steamship, Car Builders' and
Plumbers' Earthenware. Sanitary
Specialties of Every Description

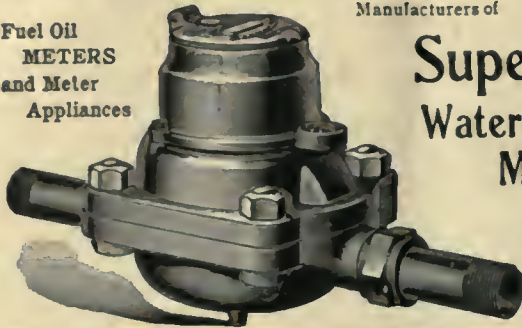
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Fuel Oil
METERS
and Meter
Appliances

Manufacturers of

Superior Water Meters



Write for
CATALOG
and
PRICES

290-296 Terrace.

BUFFALO, N. Y.

A ballcock that works perfectly under all conditions is a source of great satisfaction to the plumber.

Our No. 644 shown here-with is one of this kind.

Works perfectly under all pressures, high or low.

Made in four styles

No. 644-A. Bottom Supply.

No. 644-B. Top supply straight shank.

No. 644-C. Top supply Right angle shank.

No. 644-D. Low Down.



Send for our Catalogue of
Other Fittings.

The Frost Mfg. Co., Kenosha, Wis.



\$8.00 NET.

"Say! what are you trying to do? I sent for you to do this job. Why don't you do it? Your fire pot won't work? Well, that's a nice note! Why don't you have a good one? Do you think I am going to pay you for fooling with that thing? Why don't you buy Clayton & Lambert Mfg. Co's fire pots—the 'Money back if you

are not pleased" line? They must be good or they could not sell them in that way. Send for their catalog or ask your jobber for their fires."

Clayton & Lambert Mfg. Co., Detroit, Mich.

4 Trains a Day

via the

MONON ROUTE

and C.H.
& D.Ry.

ONLY 8 HOURS FROM

CHICAGO TO CINCINNATI

BY DAY, Parlor and Dining Cars.

BY NIGHT, Palace Sleeping and
Compartment Cars.

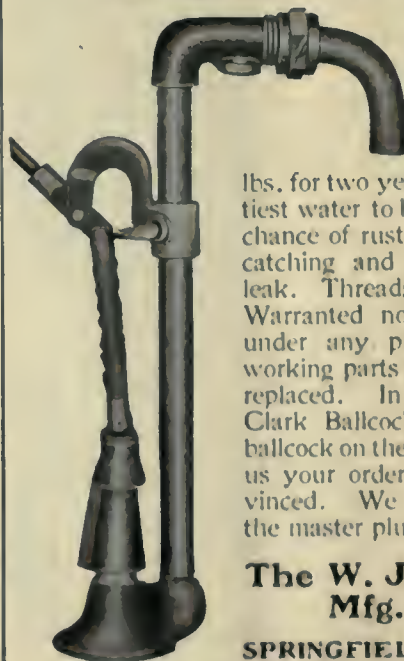
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200 Custom House Place, Chicago.

THE BALLCOCK

That Beats the World



Has no packings to wear out and leak. Stood high water pressures of 125

lbs. for two years in the dirtiest water to be found. No chance of rust or lead chips catching and causing it to leak. Threads cut standard. Warranted not to hammer under any pressure. The working parts may be easily replaced. In a word The Clark Ballcock is the best ballcock on the market. Send us your order and be convinced. We sell direct to the master plumber.

**The W. J. Hyland
Mfg. Co.**

SPRINGFIELD, MASS.

The IMPROVED Hygienic Seat



**The
Latest
Best
and
Only
Sanitary
Seat
on the
Market**



**The
Proper
Seat
to Use
in All
Public
and
Private
Buildings**



The seat and cover are each single pieces of steel stamped under heavy pressure into proper shape, and connected by malleable hinges which are riveted to both seat and cover. These seats are enameled in white making them marvels of beauty.

The under surface of the Hygienic Seat is concave, making the inner edge form a drip so that any accumulated moisture drops into the bowl and prevents the formation of the black and filthy surface usually found on the under surface of wood seats. One of the first impressions conveyed to the mind when this seat is presented is that it must be cold and disagreeable. Practical tests, however, have demonstrated beyond a doubt that in this respect they are in no wise different from wood seats. It is perfectly hygienic as its name implies, because it is absolutely moisture proof. Being made of steel and coated with a water-proof white enamel baked on it, it is non-absorbent. It will not split and it has no creases and corners that cannot be wiped off easily the same as earthenware. The enamel is not injured by the washing or scrubbing that removes the varnish from the wood seat.

Orders filled promptly. Prices and further particulars on application.

THE HYGIENIC SEAT COMPANY

139 BEAUBIEN STREET

DETROIT, MICH., U. S. A.

MENTION DOMESTIC ENGINEERING

Trenton Potteries Co.

TRENTON, N. J.



Complete Bath Room No. 1. all white porcelain, showing no metal fixtures.

The
Largest
Manu-
facturers
of
Sanitary
Earthen-
ware
in the
World.

When you visit the Louisiana Purchase Exposition at St. Louis, you are invited particularly to visit our exhibit, which is located in Section 2-B, Manufacturers Building. The accompanying illustration of two bath rooms shown is only a small part of this exhibit.



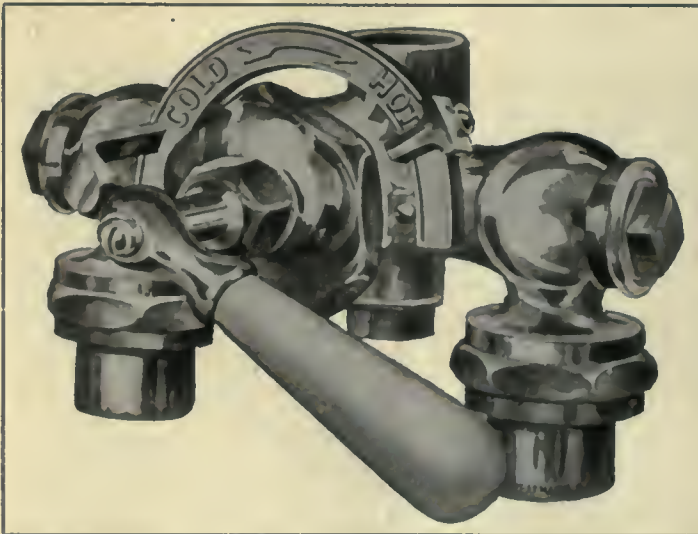
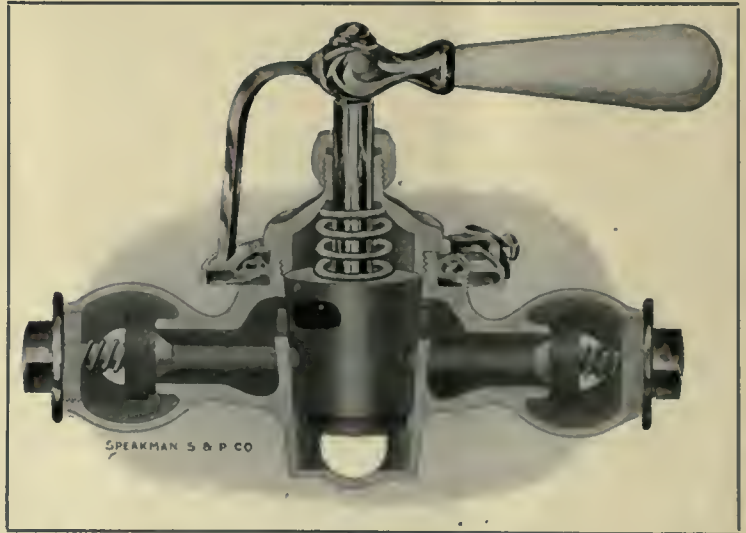
Complete Bath Room No. 2, finished in white and gold, with metal fixtures in gold.

MENTION DOMESTIC ENGINEERING

Speakman's Non-Scalding Regulating Valve for Showers (Patented)

A perfect device for controlling accurately the temperature of water in connection with showers.

This is not an experiment! We have gotten beyond that stage in shower valve making. We have many of these valves in use in large bathing establishments. The owners tell us the showers equipped with



THE SPEAKMAN "NON-SCALDING" VALVES are the best they have seen or used. We are prepared to furnish any of our styles of showers equipped with the valves, and will gladly furnish further information if you will write us.

SPEAKMAN SUPPLY & PIPE CO.

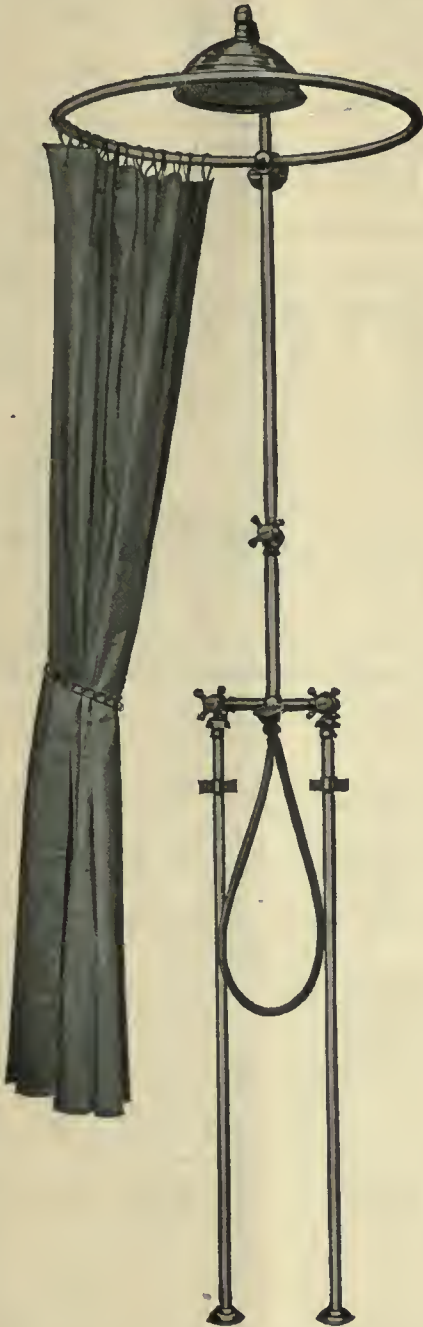
New York Office:
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5th Avenue and 20th St.

WILMINGTON, DEL.

New York Telephone,
No. 3349 Gramercy.

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The "Mermaid" Shower Fixture



is finding a large sale because it is better value for the money than any other shower on the market.

Some of the Points of Superiority are :

Heavy Brass Tubing, Well Nickered.

24½ inch Curtain Ring.

8½ inch Tubular Shower Head.

Fancy Wheel Handles with China Indexes on Valves.

Is furnished with Check Valves.

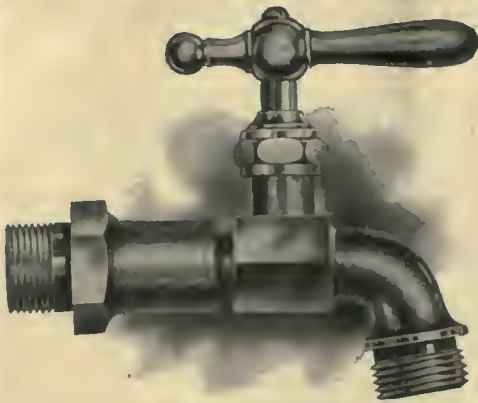
WRITE US TO-DAY
FOR QUOTATIONS.

We will save you money. Order a sample and if it is not satisfactory, return at our expense.

MITCHELL & VAN METER COMPANY, LINFIELD, PA.

We also manufacture the "Cascade" Portable Shower Fixture.

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There's a Pound of Satisfaction in
every Ounce of—

MONARCH BRASS GOODS

High Grade Cocks, Compression and Fuller
Work, Bower Traps. Ask Your Jobber.

THE MONARCH BRASS CO. Cleveland
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\$3.00 SAVED
TO ALL POINTS EAST AND WEST
VIA THE **D & B LINE.**

"Just Two Boats"
BETWEEN
DETROIT & BUFFALO
Daily Service

**DETROIT & BUFFALO
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**THE LAKE AND RAIL ROUTE
WORLD'S FAIR, ST. LOUIS
DAILY SERVICE, MAY 26th**

Improved Express Service (14 hours) Between
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Leave **DETROIT** Daily - 4:00 P. M.
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Connecting with Earliest Trains for all Points in NEW
YORK, PENNSYLVANIA and NEW ENGLAND STATES.

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Rate between Detroit and Buffalo \$2.50 one way,
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First-class, Second-class, Tourist Special, Conventions
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Catalogue
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Three trains a day Chicago to San Francisco. Tickets
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Use Up-to-date Goods

**CLEAN SWEEP TRAPS CLEAN
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Our 4 1/2" Fuller Bath Cocks are the best in
America to-day. No stamped parts. Traps
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Jobbers in U. S.



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DETROIT

Sole Manufacturers

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W. & P.
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COLD WEATHER will soon be with us. It is a time when all outside plumbing has a most severe test, but if you have installed one of our anti-freezing outfits, you need have no fear that you will be troubled with any repairs or changes caused by the cold.

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dry tub legs on the
market.

Write us for prices, stating the
quantity you can use—it will
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Speakman Supply & Pipe Co.
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NEW YORK OFFICE—PRESBYTERIAN BUILDING
5th Avenue and 20th Street

Telephone 3349 Gramercy

PIPE STRAPS

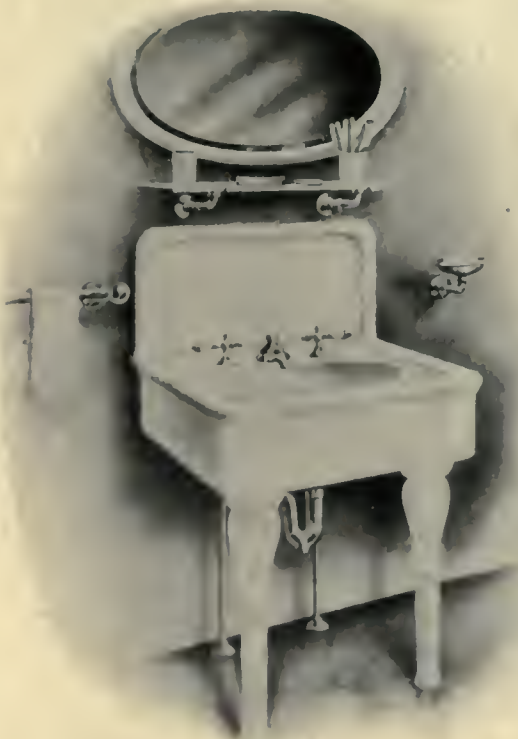
*Single or
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Brass or nickel plated
with rubber bumpers

*Send for
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Plumbing
Specialties*



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Perfection Porcelain

Made by the

**American
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NEW BRIGHTON, PA.

Manufacturers of Solid Porcelain,
Flat and Roll-Rim Laundry Tubs,
Kitchen and Pantry Sinks, Lava-
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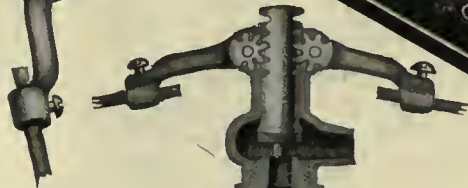
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THE FABIAN

HIGH PRESSURE Ball Cock



PAT. OCT. 21, 1902.



PAT. OCT. 21, 1902.



Made of best Red metal. Requires no packing. Instead of loose lever motions it has a positive gear motion. Can furnish tail pieces with any desired thread. Has removable seat made from best steam metal. Has large water-way and will fill tank rapidly. Will work equally as well under high or low pressure. Absolutely noiseless. The acme of simplicity. It has obtained instantaneous popularity.

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ABSOLUTE SATISFACTION
OR MONEY BACK

PRICE IS LOW

MANUFACTURED BY

FLECK BROS. CO.
PHILADELPHIA, PA.

MENTION DOMESTIC ENGINEERING

Another New Addition to our "High Grade" Line

"PARAGON"

PATENT

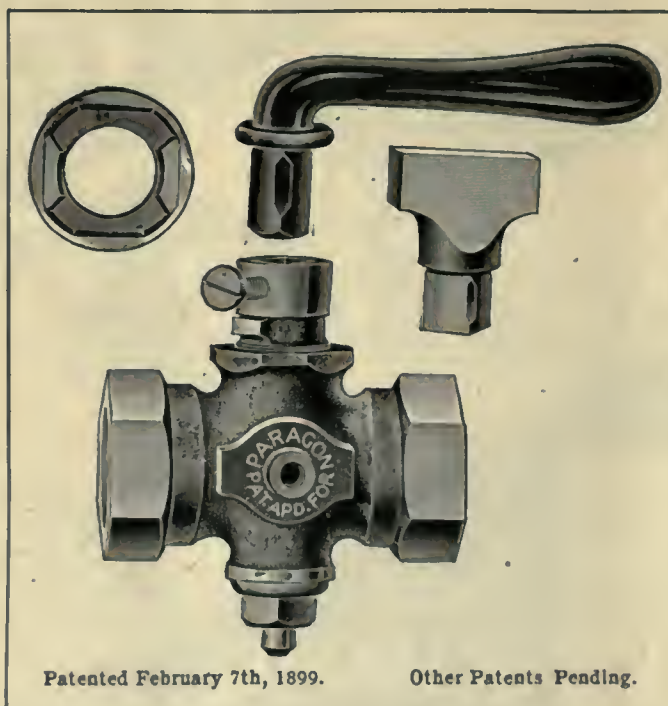
GROUND KEY WORK

Full
Waterway

Absolutely
Dustproof

Grinding
the Best

Fully
Guaranteed



Weight
Exceeded
By None

The Very
Best of Metal

New Features
Adding Greatly
To Strength

Tested to
200 Lbs.

As will be observed, the manner of fitting the cap on the body instead of the plug is a new feature. This insures greater bearing surface, consequently much more strength. Our cap is absolutely dust-proof. No open holes or slots being necessary.

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The trade knows our reputation as manufacturers of "High Grade" goods. We can't afford to put a new article on the market that is inferior. We know our PATENT "PARAGON" GROUND KEY WORK has advantages over other makes, and possesses none of their defects, and it is with the greatest confidence that we introduce this new line to the trade, guaranteeing every piece of goods to be strictly first-class in every respect.

THE SANITARY COMPANY

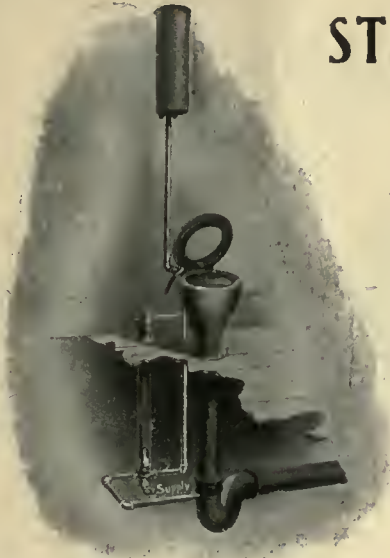
Manufacturers of "Paragon" Plumbers' Brass Goods

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Because It is perfectly Frost-proof.
It's merits sell it.
It is the HAAS Frost-proof Water Closet.

Write for Circular and Discounts.

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Seat with back block attachment or post hinge. Made after your own template. Tanks with pull or push button fittings. Lowest prices and best goods in U. S. Write for prices. Catalog on request.

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The Erie Railroad Company's Industrial Department has all the territory traversed by the railroad districted in relation to resources, adaptability, markets and advantages for manufacturing, and can advise with manufacturers in relation to the most suitable locations. For full information address

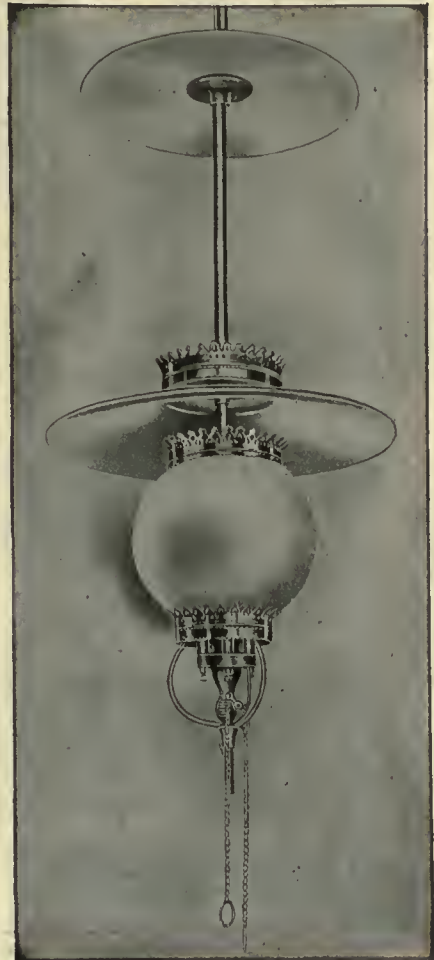
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Eagle Gas Arc Lamp

A Marvel of Production for the price. The Most Artistic Designed Lamp of the Chain Pull Pattern. Mechanical Parts Interchangeable.



The General Construction of this lamp is entirely different from any four light cluster on the market, the body of same being made of castings, leaves no joints dependent upon a few threads on light tubing and covered with solder to give strength for transportation. **The Objectionable Plug Cock** is superseded by a Rack and Pinion movement controlling a flat ground seated valve which insures a free movement at all times regardless of any conditions it may be subjected to.

A Very High Efficiency is obtained owing to the Superheating Gas Chamber. A feature that is not only in theory but an actual fact and readily demonstrated by a test.

The Unique Globe Holder Catch will be appreciated by those whose duty it may be to maintain, as it requires but the press of your finger to lower the globe, while the replacing is simply to raise it. No set screw to bother with, hence another danger of breaking mantles removed.

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Manufacturers of the **EAGLE** Instantaneous Water Heaters
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H. O. Canfield Co.

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Nickel Plated

Made by

**The Ireland
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Mfg. Co.**

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¶ The only change made in the Water Closet Bowl in over a Thousand Years.
¶ It isn't All in the Slant. ¶ The Seat has an important bearing on results. ¶ And It is different too. ¶ Don't you think You ought to know all about the NATURO.

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A HOWLING SUCCESS

The GHARM Air Regulator

MADE
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TOO SIMPLE
TO GET
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Vent that Vents



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The Charm Air Regulator Co.

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The Finest Plumbing in St. Louis done by J. J. McCue

All Plumbing Supplies in this Hotel manufactured and furnished by

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No special packing required. Ground joint coupling which is always tight. Roller bearing lever on cam, reducing friction to lowest amount. No hammering, no singing or whistling. Has only one packing which is easily removed. Removable seat of best steam metal. We are making Floats stamped with our B. B. which are thoroughly guaranteed.

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These Bibbs are made in a variety of different styles, all of same degree of excellence

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